

THE SOVIET ECONOMY DURING THE PLAN ERA

By
NAUM JASNY

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DIRECTOR'S PREFACE

The author of this book is well known for his comprehensive historical and analytical study, *The Socialized Agriculture of the USSR: Plans and Performance*. It is now widely regarded as indispensable to students of the Soviet Union, especially of its economic development. That book focused upon a particular, though a vital, segment of the economy.

Its author almost inevitably was drawn into an extension of his studies so as to probe more deeply into the nonagricultural sectors. Sound and scholarly work in this wider field had obviously become so important to the Western world that the Institute, despite its general concentration on problems of food and agriculture, felt under obligation to facilitate the work.

This essay, *The Soviet Economy during the Plan Era*, is the first of three which embody the results of the author's researches in the wider field. Two others are in press: *The Soviet Price System* and *Soviet Prices of Producers' Goods*. We are satisfied that the trilogy will rank with the author's earlier study of socialized Soviet agriculture as a major contribution to understanding of the evolution of the socialized Soviet economy.

Grateful acknowledgment is made to the Rockefeller Foundation for grants of funds that made possible the preparation and publication of these works. The Foundation is in no way responsible for the treatment or even for the choice of subjects. In accordance with the standard practice of the Food Research Institute, the final responsibility for the studies, in general and in detail, rests with the author himself.

MERRILL K. BENNETT

STANFORD, CALIFORNIA
July 25, 1951

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ACKNOWLEDGMENTS

These acknowledgments cover also the two essays to appear successively (see the titles below) which actually make up one research project with the present essay.

Mr. Constantin Klatchko assisted me during a large part of the work on the project. The compilation of rates of turnover tax, in Appendix Table I in *The Soviet Price System*, is entirely his work. I enjoyed the valuable co-operation of Mr. George Denike, though unfortunately for only a few weeks, in finishing up the tiresome Appendix Tables in *Soviet Prices of Producers' Goods*.

Mrs. Luba Richter of the U.S. Department of State kept me informed on developments on the agricultural front, and frequently I was able to turn for evidence to the experts of the U.S. Department of Commerce, Miss Eugenie Bouianovsky and Mr. L. M. Hermann. The assistance of the U.S. Department of Agriculture Library and of the Slavic Room of the Library of Congress was already mentioned in my book on Soviet agriculture. On this occasion I also want to mention Miss Riva Berman of the Library of the U.S. Department of State, who helped to locate the reference books which gave me a start on the work on prices of producers' goods.

The Food Research Institute co-operated extensively in bringing the three essays to the form they have now. Dr. M. K. Bennett, who did most of the editing, certainly succeeds, without substituting his personality for that of the author, in eliminating the faulty English of a person who was fifty when he began to publish in this language. I am also grateful to Mr. Stanley King, who did the editing when Dr. Bennett was absent. Dr. J. S. Davis added editorial touches. The aforementioned, and Dr. V. P. Timoshenko as well—and most extensively—made valuable suggestions for the text. The charts are by Mr. King, while Miss Rosamond Peirce was helpful in bringing the tables into final form.

N. J.

WASHINGTON, D. C.
July 1, 1951

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CHAPTER I

INTRODUCTION

The results of successive Five-Year Plans in the Soviet Union since the first was launched in 1928 would find their most summary expression in statistics of Soviet national income, if those statistics were available in such form that their validity could be accepted—as they are not. The broad purpose of this study is to reach estimates of Soviet national income, and of its major components, covering 1928–48 or selected important years in those two decades, of sufficient validity to yield a reasonably trustworthy and reasonably comprehensive picture of the results of Soviet Plans. While the study was begun before 1948, it was extended to cover this year fully. Developments in 1949 could be only partially considered, while 1950 was given but passing attention.

Readers should be cautioned at the outset that the estimates set forth below cannot be treated as if they were as nearly reliable as similar estimates current for the United States. It is hoped that most estimates are acceptable as to order of magnitude; but, with the evidence as scarce, uncertain, and even deceiving as it is, inexactness and errors are inescapable. It will be seen that Soviet national income has been estimated, by independent approaches, from two points of view: that of production and that of allocation. Certain discrepancies between the results will be apparent; but it was a surprise to the author that the concordance turned out to be as close as it is.

Most of the findings presented here were released earlier. Significant changes have been made in important figures. New data have come to hand; some gaps have been filled and errors corrected as reworking of the materials proceeded. The author now believes that margins of error have been substantially narrowed, though it is too much to expect that they have been eliminated. The job is too big for one man with limited assistance.

The present monograph leans heavily on the findings of two

other studies now in press: *The Soviet Price System* and *Soviet Prices of Producers' Goods*.

GENERAL DEVELOPMENTS

The Five-Year Plans in the Soviet Union were embarked upon in order to transform the USSR, with terrific speed, from a predominantly agricultural into an industrial country on a socialist basis. When the aim of socialization was by and large reached, industrialization remained as the outstandingly important aim. As time passed, the transformation of the USSR into a first-rate military power, inferior to none, became an even more important target. At the outset of planning, great improvements of the consumption levels of the population were also stressed as an aim, the planned socialized economy having been supposed to permit the attainment of all three goals in a grand style simultaneously. But the consumption-level aim rapidly lost status, and soon came to reflect no more than hypocrisy in Soviet planning. Indeed, the perfection of the Soviet planning system and its twin brothers—state operation of the means of production and an all-embracing dictatorship—permitted an ever increasing reduction even of the specific living-standard *goals*.

Although the industrial output of the USSR has expanded, since 1928, much less than is officially claimed, the aim of industrialization was by and large reached. The output of producers' goods grew enormously. The greatest growth occurred in the machine industry, large segments of which were indeed newly created. The operation of the transportation facilities expanded as much as industrial output. The Soviets also justly claim great results with reference to "defense," as is manifested by their possession of the atomic bomb. The considerable expansion of industry and transportation was accompanied by a great deal of new construction.

Not everything in the picture, however, was rosy. Collectivization of some 20 million peasant households in the early 'thirties, and the great sacrifices in life and freedom connected with it, failed to bring about a substantial expansion of agricultural output. Although mechanization was widely introduced in industry and transport, the savings in labor proved much smaller than expected. Specifically in agriculture, a moderate decline in the

total number of workers (10–15 percent) during the prewar years of the Plan era could have been attained only by a great increase in the number of hours worked per person per year; there may not have been any increase at all in output per man per hour, and the possibility is not excluded that there was actually a decline.

The industrialization of the country was necessarily accompanied by more than a doubling of the urban population, which normally has considerably higher consumption levels. Under these conditions, the failure of the collectivization of peasant farming to bring about a great enlargement of output would have sufficed to prevent any improvement in consumption of food and some other goods made from farm products and would have even brought about a substantial decline. Additionally, with priority given to the huge new investments, grossly inadequate means were left available for construction of housing, for the output of those consumers' goods for which raw materials might otherwise have been available, for passenger transportation, and so on. And when it was officially perceived that all this was tolerable, it became the policy to allocate to the population even less of these goods and services than could well have been supplied. Consumption levels of the urban and rural population, taken separately, not only failed to increase greatly as was promised, but fell below the precollectivization level even in the best year of the Plan era.

Such developments are well known from the press, from visitors to the USSR, and otherwise. But the statistical presentation, which poses great difficulties, was never made with sufficient thoroughness to preclude the penetration of faked Soviet data, showing great increases in living standards, into professional literature. Strange as it may seem in view of the abundant non-statistical evidence on the low consumption levels, a sort of unresolved controversy exists on the subject. The writer is not too hopeful of putting an end to it.¹

The difficulties of statistical analysis arise in part from the fact that, because of great changes in the economic setup and important accompanying circumstances, even correct indexes of

¹ Although immense sums are spent on research on the Soviet economy in this country, no reliable indexes of prices of consumers' goods and of living costs in the USSR have yet been computed. The writer felt impelled to undertake the job, even without sufficient help to do it as thoroughly as would be needed.

national income and of industrial production are poor yardsticks for measuring changes in the Soviet economy during the Plan era. They are, however, the only generalized yardsticks, and therefore they must be used at least as a starting point. Far greater difficulties are caused by the distorting nature of Soviet statistics. To do away with the official exaggerations and distortions is one of the main purposes of this and the other two studies mentioned on pages 3-4.

One misunderstanding must be cleared away before turning to the analysis proper. All too frequently it is assumed that those who do not accept Soviet statistics underestimate Soviet attainments, and, more recently, that they underestimate the Soviet threat. This may be true of some, but not of the present writer. He is afraid of the Bolsheviki. He considers them a menace not to be underrated as long as they are able to channel perhaps half of the national income into new investment, armed forces, and especially atomic-bomb development, even though such channeling implies extremely low consumption levels for the population. Indeed, if the Soviet data on the changes in industrial output in *physical terms* can be trusted (and there is too little evidence to distrust them), so large a rate of industrial expansion is indicated for the most recent postwar years that there certainly is ground for serious concern.

Evaluation of the Soviet power should nevertheless be based on facts rather than on fairy tales. More than half of the period 1928-48 was taken up by the war against the peasants, by World War II, and by rehabilitation of the destruction wrought by these wars. If the alleged 7.5-fold increase in industrial output and the alleged roughly 6-fold increase in national income during those battle-rich decades had even been approached, if they were anything but fairy tales, the world would look quite different from what it is now. The Soviet dictatorship, if any, would be mild. There would be no iron curtain. On the contrary, everybody would be invited to come and see for himself the Soviet "happy, well-to-do life" which certainly would have been attained, in spite of the greatest imaginable rate of industrial expansion and the maintenance of a huge military force armed to the teeth. Such expansion would indeed have been so tremendous an

achievement of the socialized planned economy that there might not have been any capitalism left in the world.

Capitalism is still here, and the "happy, well-to-do life" of the Soviet population can be admired only through the ever thickening curtain. Nevertheless, the official indexes of accomplishment are produced and reproduced outside the curtain. This only shows that, while with reference to physics and techniques the world is already in the Atomic Age, in research on the Soviet economy it is still in its infancy.

THE OFFICIAL STATISTICS

The official (stated directly or implied) Soviet indexes of industrial output and national income during the Plan era are as follows (in billion rubles at so-called "unchangeable 1926-27 prices") for selected years since 1928:

Year	Industrial output	National income
1928	21.8	25.0
1937	95.5	96.3
1940	137.5 (138.5) ^a	125.5 (128.0) ^a
1948	163.0	144.0
1950	235.0 ^b	205.0 ^b

^a The lower figures are the original ones given in N. A. Voznesenskii's report on the 1941 Plan to the XVIIIth All-Union Conference of the CPSU(B) (Moscow papers, Feb. 19, 1941); the figures in parentheses are postwar official revisions. The reasons for the revisions were never stated. They must have been at least largely due to differences in territory covered.

^b N. A. Bulganin in his oration on the 33d anniversary of the October revolution (Moscow papers, Nov. 7, 1950) emphasized that gross industrial output exceeded the prewar level by 70 percent in the first ten months of 1950, and that national income in 1950 would exceed the prewar level by more than 60 percent. The data of the Central Statistical Office indicate even higher figures.

These indexes are used by international organizations, as well as by many students of the Soviet economy in this country and abroad. Reproduction of the indexes, it is true, is mostly qualified by the reservation that the indexes had, may have had, have, or may have, an upward bias. Such qualifications are obviously merely of the modifying, and definitely not of the refuting, type. One student expressed the belief that "this error materialized mainly in the prewar period, and probably for the most part in the period of the First Five Year Plan."² Another thought that

² Abram Bergson, "The Fourth Five Year Plan: Heavy versus Consumers' Goods Industries," *Political Science Quarterly*, June 1947, LXII, 200.

the "bias . . . exaggerates mainly the industrial growth during the first and part of the second Five Year Plans. . . ." A third, in discussing the 1928-40 period, conceded only that "it is possible that the figures of [industrial] production expressed in rubles tend to show a somewhat greater tempo of increase than would be justified by the physical increase."⁴ All these writers, and the international organizations as well, base their analyses on the official indexes.⁵ In the United States, the official Soviet indexes occupy a particularly strong position, owing to the persistent assertion of a number of well-known students in the field that the Soviet indexes are not falsified or manipulated.

It is to Clark's great merit that he dismissed such official Soviet statistics as unusable more than a decade ago. According to his computations, the Soviet national income increased during the decade 1928-38 by 54 percent,⁶ rather than by the standing official figure of 320 percent. According to Wyler, the second meritorious dissenter, Soviet national income expanded by 87.1 percent during 1928-37, as against the official estimate of 284 percent. Clark's methods of estimating are perhaps somewhat courageous, while Wyler published only the results of his findings and, thus far, has not provided the promised particulars of his analysis.⁷ Both Clark's and Wyler's analyses can well stand improvement.

Aside from the present writer, Clark seems to be the only student who ever mentioned Wyler before 1950, while Clark's findings, though occasionally mentioned, are neglected. Nobody has seized the opportunity to correct and/or supplement Clark's or Wyler's analysis. The shortcomings of those analyses are by no means the main reason why they have been neglected.

³ P. A. Baran, "National Income and Product of the U.S.S.R. in 1940," *Review of Economic Statistics*, November 1947, XXIX, 227-28.

⁴ Alexander Baykov, *Bulletins on Soviet Economic Development* (University of Birmingham, England), May 1949, I, 9. Even more clearly is Baykov's appraisal of Soviet statistics laid down in the introduction to his book: "[Soviet statistics] can be used to analyse the economic processes and the economic system of the U.S.S.R. with the same degree of confidence as similar sources published in other countries." *The Development of the Soviet Economic System. An Essay on the Experience of Planning in the U.S.S.R.* (Cambridge, 1946), p. xiv.

⁵ Data on world industrial production in *Monthly Bulletin of Statistics* (United Nations, Lake Success), April 1951, V, 1-2, imply an increase of Soviet industrial production by the fantastic figure of 137 percent from 1937 to 1950.

⁶ Colin Clark, "Russian Income and Production Statistics," *Review of Economic Statistics*, November 1947, XXIX, 216. Clark's principal study on the subject was published in 1939. See *A Critique of Russian Statistics* (London, 1939).

⁷ Julius Wyler, "The National Income of Soviet Russia," *Social Research*, December 1946, XIII, 510.

The present writer has long had reason to mistrust the Soviet statistics. Many statistics, expressed in values, he could only regard as a pack of lies. But he was by no means eager to accept Clark's estimate. It seemed simply unimaginable that official falsification could have reached such elephantine proportions. Clark's manner of handling the statistical data was also a restraining factor. Yet after years of study the writer came to accept Clark's general position, if not his decimal points. Moreover, it turned out that Clark's and Wyler's computations are in fair agreement, the apparent difference being largely due to a difference in procedure. Courageous as Clark's analytical methods may be, they are unbiased (he accepts, for example, the exaggerated official crop estimates), and errors tend to offset one another. Nor does Wyler's analysis show a bias. Whatever errors are in their estimates, these authors followed the right path—the only possible path. They deserve the more appreciation because neither appears to be familiar with the Russian language.

TERMINOLOGY

To ease for the reader the task of following the subsequent analysis, the various types of prices and the two concepts of national income dealt with below had best be listed and explained.

1. *Current prices*, or as they are frequently referred to in the USSR, "*prices of the respective years*": Except in its first two years (1929 and 1930) and the last year here considered (1950), the Plan era was characterized by a strong and almost uninterrupted monetary inflation, with weighted prices in 1949 reaching a level perhaps 15-fold that at the start of the period. It is of great importance, furthermore, for appraisal of the values in current prices, that in 1948, for example, the prices of consumers' goods were more than 25-fold those of 1926–27. Prices of producers' goods, however, were little more than 3-fold this level, and even after a big boost in 1949 were still only 6.0–6.5 times as high as in 1926–27. Armaments, which belong among producers' goods in Soviet terminology, were in 1948 relatively cheaper even than civilian producers' goods. Changes in railway freight rates paralleled those of the prices of producers' goods. The rise in wages—the price of labor—was intermediate between the increases in prices of producers' and consumers' goods.

It is therefore an erroneous, though a very common, procedure to consider one ruble equivalent to another ruble in appraising new investments, expenditures on the armed forces, and all other sums in current prices. The *Economist*, for example, in analyzing the 1948 state budget, said:

Thus, the total national expenditure on schools is still nearly 50 per cent higher than the expenditure on defence or than capital investment in the basic industries. . . . The "cultural revolution". . . is still in full swing.⁸

To anticipate the presentation below, let it be stated that at real 1926-27 prices, total net investment and only the *earmarked* expenditures on the armed forces amounted in 1948 to about 27 billion and 13-14 billion rubles respectively, while the expenditures on education were equivalent to, at most, 4 billion such rubles, and may, moreover, have included atomic research.

2. "*Unchangeable 1926-27 prices*," the prices officially used in the USSR for the indexes of industrial production, national income, and some others: These prices were originally the actual prices of 1926-27. Soon, however, the practice developed of placing high prices on new goods and new models of old goods, and nevertheless treating these enhanced prices as "unchangeable 1926-27 prices." "Phantom prices" is an appropriate designation for them.

3. *Real 1926-27 prices in the USSR*: These are actual prices of that year with prices of new commodities and new models of old commodities brought into line by the writer with those of commodities and models which existed in 1926-27.

4. *American prices in 1926-27 and 1940*: Although not so specified, these are, of course, the actual prices of the respective years.

Two concepts of national income have to be used in this study:

1. *The Soviet concept of national income*, which includes only the net output and exchange of and in *commodities*, thus consisting of the contributions from agriculture, industry, construction, freight transportation, communications so far as they serve business, and trade including catering. All other services are disregarded, allegedly in compliance with Marxian theory.

2. *The usual non-Soviet concept of national income*, which

⁸ *The Economist* (London), Feb. 14, 1948, p. 268.

includes also nonmaterial services; this concept is the one used also in the United States.

In poor countries like the USSR, national income according to the non-Soviet concept is only moderately, say about 10 percent, larger than national income computed according to the Soviet concept. In the United States the difference is far greater.

Aside from the difference noted, the term "national income," as used in the USSR, corresponds to "national income at market cost" or to "net national product" as this term is used in the United States.⁹

Of interest in connection with the discussion of national income is a recent change in the Soviet term for national income. Probably from the time when this concept had been introduced in Russia, the term for it, literally translated, was *people's* income, apparently from the German *Volkseinkommen*. The word "national" had in Russia more or less the meaning of "nationalist" and was always treated with suspicion by liberals. The 1948 edition of the official reference book on economic statistics still used the old term.¹⁰ Yet recently, as if by magic, the Soviet term became *national*, not *people's*, income. The change, obligatory to everybody, was apparently announced through underground channels, or the use of the new term in the report of the Central Statistical Office,¹¹ published in Moscow papers on January 18, 1950, served as such an announcement. The word "people" seems to have become not quite palatable to Soviet officialdom.

PROCEDURE

National income is not only developed according to an unusual concept in the USSR, but it is also computed differently, from the production end, by estimating the *gross* outputs of each

⁹ U.S. Dept. Comm., *National Income and Product Statistics of the United States, 1929-46, Survey of Current Business, Supplement*, July 1947, pp. 8-12. Simply "national income," as this term is used in the United States, is "national income at factor cost," which differs from "net national product" in that the latter includes indirect taxes.

¹⁰ USSR Gosplan, Central Office of National-Economic Accounting, *Dictionary-Handbook on Social-Economic Statistics* (2d ed., Moscow, 1948), p. 82.

¹¹ The Central Statistical Office of the USSR was reorganized several times during the Plan era, with or without a change in the name. The greatest reorganization occurred about 1930, when the organization known in abbreviated form as TsSU disappeared. This organization is translated into English as Central Statistical Board by the writer. For its numerous successors the word "office" rather than "board" is used as part of the name, although in Russian it is always *upravlenie*. The writer wishes he could use different names for the pre-1930 Gosplan and the Gosplan of later years. It certainly remained the same organization in name only, yet many do not discriminate between them.

economic sector, deducting from these the outlays including depreciation, and adding up the balances. The national income thus computed in the USSR corresponds to net national product, or national income at market cost, of this country. Clark and Wyler made their computations on the basis of the international rather than the Soviet concept of national income, and expressed their findings in international units (Clark) or American 1940 prices (Wyler). While their procedures make it easier to compare Soviet data with data for other countries, they tend to conceal the true extent of manipulation in the official Soviet indexes. Bergson determined the Soviet national gross and net national product and income in 1937 both in current prices and in what he calls "adjusted rubles." His procedure was the usual one from the allocation end. By omitting items which may not have been covered by the Soviet concept, Bergson finally reached a figure which is supposed to correspond to the Soviet concept of net national product.¹²

Since the present writer considered it important to establish the rate of exaggeration of the official national-income estimates, net national product was first determined according to the Soviet concept and procedure, i.e., from the production end. With the help of more or less arbitrary adjustments, the estimates of net national product (Soviet concept), thus determined, were then raised to correspond to the American concept. The four principal items in the allocation of the net national product, namely, net investment, military expenditures, private consumption, and expenditures on education and health services, were estimated independently. While unaccounted-for allocation items, consisting almost exclusively of expenditures of the state on administration less wages, would not be difficult to establish or estimate, they are too small to be worth the trouble.

The estimates expressed in current prices were then reduced to real 1926-27 prices, as described above. Prices of 1926-27 were chosen mainly because they were the starting point of the misleading "unchangeable 1926-27 prices." Otherwise the 1927-28 or 1928 prices, i.e., those of the last pre-Plan year,

¹² Abram Bergson, "Soviet National Income and Product in 1937. Part I. National Economic Accounts in Current Rubles," and "Part II. Ruble Prices and the Valuation Problem," *Quarterly Journal of Economics*, May and August 1950, LXIV, 208-41, 408-41.

would have been used. The defects of the 1926-27 price pattern are fully realized. (This pattern considerably exaggerates the share of net investment and military expenditures in the net national product and, since the principal expansion during the Plan era was in these two items, the pattern also exaggerates the rate of increase in net national product over time.)

Interest nowadays seems to exist for comparisons of potentials of the USSR and the United States only after rubles are converted to dollars, even to dollars of the vintage of 1950. However, conversions to American dollars are made here only for agricultural and industrial production and net investment, specifically construction (see the table on p. 17). There is much arbitrariness involved in converting the value of private consumption to American dollars. The arbitrariness is even greater in a similar conversion of the value of services. A great underestimate would be involved, if the value of services were appraised at what the goods and services consumed by those engaged in services in the USSR cost in that country. This procedure would obviously ignore the advantage the USSR has from utilizing manpower in far greater numbers than the United States can afford to do. There is no obvious reason, in a computation of Soviet national income in dollars, to appraise the work of a physician at only, say, one-fifth of what he would cost in the United States, merely because his activities are confined to a country with low wages. But on the other hand, it would seem incorrect to estimate services at the value of similar services in the United States. The vast propaganda machine of the Communist Party alone would greatly boost Soviet national income so computed. Also, a man in the ranks simply has less value in the USSR than in the United States, because there is so much less ammunition per man there. Furthermore, such a method of appraising the Soviet national income would bring it about that a change-over from workers' overalls to soldiers' uniforms on a large scale would lead to a great increase in national income. Due primarily to a tremendous difference in the wage levels, the economies of the two countries are vastly different, and all these differences cannot be compressed into a simple formula permitting the expression, "The national income of the USSR is so many percent of that of the United States." The

whole problem could probably be solved only in a highly arbitrary way.

As the last step, the estimates of net national product determined from the production and allocation ends in real 1926-27 prices are presented without any further adjustments (see chapter v, and especially the table on p. 85).

* * *

On completion of these calculations, the writer was urged by many of his friends to give them a figure for per capita national income in the USSR in some way comparable with a corresponding figure for the United States. After much hesitation, he estimated the per capita net national product in the United States at 3.5-fold that in the USSR in 1940 and at close to 4-fold in 1950—with services appraised at an arbitrarily chosen figure intermediate between what those services cost in both countries. He realized that this estimate implied some 22.5 billion dollars of 1950 value for military expenditures in the USSR in 1950, and that this figure was being greatly exceeded in the United States under plans for rearmament current early in 1951. He warned his friends not to lose sight of the fact that the Soviet Union can wage war on far fewer dollars than can the United States.

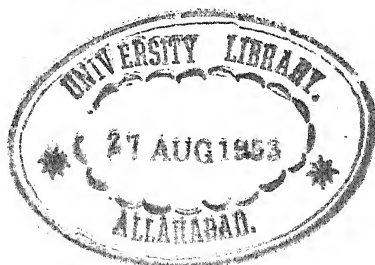
ADDENDUM

More than six months have elapsed since this essay was completed. Further groping in material previously at hand and in fresh data led to some modifications in appraisal. But only two points need be mentioned here.

The tables on pages 17 and 85, as well as Table I in the Appendix, indicate that capital investments in 1948 were in excess of 1940 and that construction was even more so. Together with the official claims on the increase in volume of capital investments in 1949 and 1950 (20 and 23 percent respectively), which seem to be acceptable, those data imply that levels of capital investments and construction in 1950 were 62 and 71 percent above those of 1940. Doubt about the indexes used for computing the values for capital investment and construction in 1940 and 1948 is expressed in the author's *Soviet Prices of Producer's Goods*, which was finally revised shortly after completion of the present

essay. Scant data on changes in output of building materials from 1940 to 1950 were released in April 1951, in conjunction with conclusion of the 4th Five-Year Plan Period. These data make rather improbable the indicated high level of construction, and consequently of capital investments, in 1950 and also 1948. If the revision of the respective estimates would not have involved too great costs, roughly the same amounts of capital investments and construction would have been assumed for 1948 as for 1940.

A great number of changes in estimates in the three essays had to be made in the process of work. But the estimates of total industrial output in 1943 and 1945 (60 and 70 percent respectively of 1940) remain as they stood a couple of years ago. The reason is that industrial output of those years had consisted to a very large extent of armaments, and for these no reliable basis of estimate can be found. Yet, if the author were to estimate the 1945 industrial output today, he would put it at a lower figure than 70 percent of 1940. The writer leans, as a precaution, toward moderate overestimation of factors favorable to the Soviets. However, overestimation of the 1945 output leads to underestimation of the rate of subsequent recovery, because the estimates for later years, when the share of armaments in total industrial output declined greatly, were subject to a much smaller magnitude of error. Here we merely draw the attention of readers to the fact that the 1945 output appears somewhat overestimated in this and the following essays, and that consequently the rate of increase in subsequent years is somewhat underestimated.



CHAPTER II

SOURCES OF NATIONAL INCOME

The overestimations in official Soviet data on gross output are gradually being recognized. But less attention has been paid to the fact that Soviet national income or the *net* output has been overestimated even more than the corresponding gross value.

For sound reasons the League of Nations used to base its indexes of world industrial production on net, rather than on gross, production.¹ While the procedure was correct, it nevertheless led to even greater exaggeration of Soviet industrial production and of its share in the world total than would have been the case on the basis of gross production. Certain sectors of the national economy other than industry, however, surpass even this in the extent to which exaggerations of net values, or contributions to national income, exceed those of gross values.

GROSS VALUES

Agriculture.—Weather conditions assumed normal, the increase in agricultural output from 1928 to 1937, measured in real prices of 1926–27, was equivalent to about 15 percent. The further expansion between 1937 and 1940 amounted to little more than was provided from the 1940 output of the newly added territories. By 1948, after a great drop during World War II, the enlarged territory possibly almost regained the 1937 output of the pre-1939 territory (see the table on p. 17), while the pre-1939 territory taken alone had an agricultural output lower in 1948 than in 1928.² The situation in 1950 is very difficult to appraise, but the 1940 level of the territory in postwar boundaries is unlikely to have been regained.

Industry.—Contrary to the opinions quoted above (pp. 7–8), the upward bias of the “unchangeable 1926–27 prices” boosted

¹ See, for example, League of Nations, *Industrialization and Foreign Trade* ([Geneva?] 1945).

² Largely based on Naum Jasny, *The Socialized Agriculture of the USSR* (Food Research Institute, Stanford, 1949), Part V and others.

the estimates of industrial output much more strongly during the peaceful years of the 3d Plan Period (1937-40) than during the 1st and 2d Plan Periods (1928-32 and 1932-37); its effect became even greater during the war years. The increase in industrial output from 1928 to 1937 may be estimated at not quite 200 percent, rather than at the official figure of 338 percent. The increase in the pre-1939 territory from 1937 to 1940 was equivalent to around 15 percent, rather than 44 percent—the official figure.

USSR: AGRICULTURAL AND INDUSTRIAL OUTPUT, AND CONSTRUCTION,
SPECIFIED YEARS*

Item	1928	1937	1940*	1948
A. Billion rubles at "unchangeable 1926-27 prices"				
Agriculture	15.5	20.1	23.3	.....
Industry	21.8	95.5	138.5	163.4
Producers' goods	(8.6)	(55.2)	(84.8)	.....
Consumers' goods	(13.2)	(40.3)	(53.7)	.....
Construction .....	.....	.....	.....	.....
B. Billion rubles at real 1926-27 prices				
Agriculture	15.5	18.4	21.2	18.0
Industry	21.8	62.5	76.3	70.4
Producers' goods	(8.6)	(35.7)	(40.0)	(38.3)
Consumers' goods	(13.2)	(26.8)	(36.3)	(32.1)
Construction	4.2	13.1	13.6	15.9
Total	41.5	94.0	111.1	104.3
C. Billion United States dollars at 1926-27 prices				
Agriculture	10.9	12.9	14.8	12.6
Industry	9.2	24.1	29.7	26.9
Producers' goods	(2.6)	(10.5)	(11.6)	(10.9)
Consumers' goods	(6.6)	(13.6)	(18.1)	(16.0)
Construction	1.6	3.8	3.9	4.5
Total	21.7	40.8	48.4	44.0

* Official data for 1928 (except for those in dollars) as well as for all other data in "unchangeable 1926-27 prices." For the agricultural and industrial output after 1928, see comments in text. In converting the values in real 1926-27 ruble prices to dollars at 1926-27 prices, a ruble in agricultural products was considered equivalent to 70 cents, and a ruble in consumers' goods, to 50 cents. So far as producers' goods are concerned, the conversion for 1928 was made at the rate of one ruble equals 30 cents; for the succeeding years a slightly declining trend was assumed (1937, 29.5 cents to a ruble; 1940, 29.0; and 1948, 28.5), in view of the increasing proportion of goods with particularly high Soviet prices relative to those in America. The values of construction are from Appendix Table I, raised 5 percent for construction involved in repairs.

* Values in A for an unspecified territory; values in B and C for postwar boundaries.

Thus the extent of the increase in industrial output is exaggerated by 70 percent or more in 1928-37 and by nearly 200 percent in 1937-40. After even greater exaggeration during the war years, in 1946-49 the postwar bias in the official indexes of industrial production seems to have been around 50 percent, less even than in 1928-37.

Proofs of the overestimation of industrial production during the Plan era, and indications of the extent of the overestimates, are abundant so long as research does not consist merely in pointing out "impressive" or "spectacular" attainments. The topic will be discussed in *The Soviet Price System*, chapter v; here it suffices to summarize the findings. The Supplement to the 1941 Plan, only recently available, supplies the basic evidence on the bias of "unchangeable 1926-27 prices."³ The writer expected that the Plan, not released for general circulation in the USSR, would contain industrial output not only in "unchangeable 1926-27 prices"—mainly propaganda—but also in the current prices relevant for practical purposes. The expectations were borne out. As will be shown in *Soviet Prices of Producers' Goods*, tax-free prices of industrial goods weighted by the output of state industry were in 1940 some 230 percent higher than in 1926-27. If the "unchangeable 1926-27 prices" were anything but deceitful, the industrial output as planned for 1941 in current prices—less turnover taxes⁴—would have exceeded the same output in "unchangeable 1926-27 prices" by approximately the same percentage. Nothing like this is the case. In spite of the intervening inflation, the value of machinery output as planned for 1941 in current prices turned out to have been only a little higher than the same output in "unchangeable 1926-27 prices." The value of the output of electrical machinery in "unchangeable 1926-27

³ State Plan of Development of National Economy of the USSR for 1941 (*Supplements to the Order of SNK USSR and TsKVPK (b) No. 127 of January 17, 1941*) (no date or place of publication given); hereinafter cited as *1941 Plan, Supplement*. Owing to the great importance of this document, its brief history in this country may be of interest. The document was first buried, perhaps for years, in official files and was stamped confidential. The writer learned of its existence in this country from the *New York Times*. The Office of Intelligence Research of the United States State Department refused even to raise the question with the competent authority as to the possibility of my seeing the document. Fortunately, assistance could be found elsewhere. But I was unable to see the *whole* document until months after it was ultimately declassified.

⁴ Actually only the largest portion of turnover taxes is excluded; the taxes are left in, so far as they existed in 1926-27.

prices" even exceeded that in current prices. It is relevant, moreover, that the evidence in the *1941 Plan, Supplement*, clearly shows a considerable upward bias in the "unchangeable 1926-27 prices" not only with reference to machinery (this was certain earlier, though the writer expected less overestimation than appeared), but also with reference to almost all other goods.

For the year 1938 and the first half of 1939, data on the output of the Commissariats for Defense Industries in "unchangeable 1926-27 prices" are available. Comparison of this output with the budgetary expenditures on defense, expressed in current inflated prices, shows a great amount of overestimation of the armaments output in terms of "unchangeable 1926-27 prices" in those years also.

Since the "unchangeable 1926-27 prices" were actually rising, outputs expressed in those prices regularly showed much greater increases than the outputs in *physical terms*. Outputs of machinery valued in "unchangeable 1926-27 prices" persistently displayed increases several times greater than the increases in output of steel and coal in physical terms.⁵ While a certain increase in the degree of steel fabrication did occur, at least part of it was offset by increased participation of different factories in the output of the same final goods, with each semifinished product, of course, appearing in the value of gross output of the machinery industry and of total gross industrial output. The principal reasons for the great disparity between the increases in values and in physical terms were, in any case, first, that the output of goods especially overvalued in "unchangeable 1926-27 prices" was increasing more rapidly than that of the remaining goods; and, second, that new, even more overpriced goods, and especially machines, were being introduced during the periods involved.

The targets of the first three Plans for the output of important industrial products and their fulfillment or lack of fulfillment, in *physical terms*, are shown in the table on page 20. The great shortfalls are quite at odds with the favorable picture shown by the data of the same Plans for the rate of fulfillment of the goals

⁵ See the chart in Jasny, "Intricacies of Russian National-Income Indexes," *Journal of Political Economy*, August 1947, LV, 314. From 1928 to 1950, output of steel in physical terms increased about 6-fold, metal processing in "unchangeable 1926-27 prices" more than 50-fold.

USSR: TARGETS AND FULFILLMENTS OF THE FIRST THREE FIVE-YEAR PLANS:
INDUSTRIAL GOODS*

(Percentage increase)

Item	1st Plan Period		2d Plan Period		3d Plan Period	
	Target	Fulfillment	1932-37		1937-40	
	1927-28 to 1932-33	1927-28 to 1932	Target	Fulfillment	Target	Fulfillment
Coal	112	81	137	98	45	30
Crude oil (includes gas) ..	85	91	110	37	39	12
Wood	18	29	64	38	38	32
Electricity	336	165	184	172	53	33
Pig iron	203	88	160	134	26	3.5
Steel	160	39	188	200	29	3.5
Rolled steel	135	26	202	202	31	0.8
Timber	135	100	71	12	40	1.7
Lumber	268	111	76	18	28	21
Cement	246	89	116	57	51	5.5
Cotton goods ...	69	-2	87	27	21	17
Woolen goods ...	180	-6	142	15	34	14
Shoes	142 ^a	37 ^a	120	100	29	25
Paper and cardboard	171	55	119	62	40	-2
Matches	122	2	114	29	47	38
Soap	176	64	180	39	44	31

* Based on official data which would take pages to reproduce here. Only those commodities were taken of which no reasonable doubt about fair comparability exists.

The targets of the 1st Plan were for the year 1932-33; the fulfillment, as usual, was that of 1932, the year in which the operation of the 1st Plan was officially terminated. Except for shoes, the targets of the 1st Plan are those for large-scale industry only; in computing fulfillment, however, the total output in 1932 was related to that of large-scale industry in 1927-28.

Both targets and fulfillment of the 2d Plan are for 1937.

The targets of the 3d Plan are from USSR Gosplan, *The Third Five-Year Plan for the Development of the National Economy of the USSR (1938-42)* [3d Plan] Draft (Moscow, 1939) (various pages), with changes so far as they were incorporated in the resolution of the XVIIIth Party Congress; see *Problems of Economics* (Moscow), 1939, No. 3, pp. 92-101.

Fulfillment for the 3d Plan Period is that in 1937-40. Half of the goals of the 3d Plan were used in computing the scheduled percentage increases during those three years, although adequate evidence exists that 55 percent of the goals would have been closer to the unknown targets of the first three years of the 3d Plan Period. No attempt was made to exclude the output of the new territories from the data on fulfillment in 1940, although this output to an indefinable extent was included in the official data here used, and was quite large for such goods as textiles, shoes, timber, lumber, matches, and so on. The targets obviously pertain strictly to the pre-1939 territory.

The table is taken from a study by this writer on Soviet planning, now nearing completion. Its data provide proof that Soviet planning operates well only in claims. Great shortfalls in goal fulfillment and great discrepancies in the rates of fulfillment of connected goals are the principal features of at least the first three Five-Year Plans.

^a The target of the 1st Plan for production of shoes is from USSR Gosplan, *Five-Year Plan for the Development of the National Economy of the USSR [1st Plan]* (Moscow, 1930), Vol. II, Part 2, p. 221. The output in 1927-28 was estimated at 60 million pairs (it was equivalent to 80 million pairs in 1928-29 according to USSR Gosplan, *Control Figures of the National Economy USSR for 1929-30*, Moscow, 1930, p. 564).

for total industrial output in *money terms* (billion rubles at "unchangeable 1926-27 prices"):

Plan period	Goal	Fulfillment
1st	46.4	43.5
2d	92.7	95.5
3d ^a	139.8	137.5

^a For the 3d Plan Period, half of the expected increase is considered to have been the goal of the first three years, and fulfillment is that of 1940. The goal of the 3d Plan pertained, of course, to the old territory. There is sufficient justification for believing that the figure of 137.5 billion rubles for 1940 output stated by Voznesenskii in his report on the 1941 Plan, already cited, also pertained almost exclusively to the pre-1939 territory.

A little consideration discloses the reason for the great discrepancy between the ratio of goal fulfillment in physical and in value terms: the goals in money terms had been set in "unchangeable 1926-27 prices," existing in the base year;⁶ the attainments in those terms were, however, calculated to a substantial extent in the higher "unchangeable 1926-27 prices" placed on goods introduced during the Plan periods themselves, and specifically in the last year of each period.

The lengthy procedures by which the writer has recalculated the official industrial indexes from "unchangeable 1926-27 prices" to real 1926-27 prices are as yet unpublished. In addition to the evidence of the *1941 Plan, Supplement*, calculations of the gross values of industrial output in 1937 and 1940 in current prices were made from data on wages disbursed by industry in conjunction with the percentages that the wage bill bore to total production costs as well as on profits and turnover taxes. The value of the 1937 industrial output in current prices was also computed from official Soviet calculations of the share of Soviet industry in world industrial output.

The value of Soviet industrial production in *current prices*, free of turnover tax, as obtained by various procedures, was about 150 billion rubles in 1937 and 230 billion rubles in 1940. According to estimates which will be presented in *Soviet Prices of Producers' Goods* (see especially chapter i), prices, likewise tax free, increased, after 1926-27, by 150 percent to 1937, and by 230 percent to 1940. Hence the industrial output in *real* 1926-27 prices amounted to roughly 60 billion rubles in 1937

⁶ The year 1927-28 for the 1st Plan, 1932 for the 2d Plan, 1937 for the 3d Plan, and 1945 for the 4th Plan.

and 70 billion in 1940. The official evaluation in "unchangeable 1926-27 prices," however, was 95.5 and 137.5 billion.

Although conversion from the value of industrial production in current prices, tax free, to real 1926-27 prices indicates an output of 60 billion rubles at these prices in 1937, this output is here estimated at 62.5 billion rubles (see table on p. 17, and the accompanying chart). In an earlier draft, it should be said, the same output was estimated at 65 billion rubles. The data shown graphically in the chart may be tabulated here as follows, in billion rubles respectively at "unchangeable 1926-27 prices" and at real 1926-27 prices:

Year	"Unchangeable 1926-27 prices" (Official) ^a	Real 1926-27 prices (Writer's estimates)
Industrial output:		
1928	21.8	21.8
1932	43.5	36.0
1937	95.5	62.5
1940	137.5 ^b	72.0 ^b
1940 ^c .....	....	76.3
1943 ^c	121.0	45.8
1945 ^c	127.0	53.4
1946 ^c	105.5	51.8
1947 ^c	126.7	59.7
1948 ^c	163.0	70.4
1949 ^c	195.0	81.2
Net national product:		
1928	25.0	25.0
1937	96.3	53.2
1940	125.5 ^b	64.0 ^c
1948 ^c	143.0	60.0

^a As published or implied in official pronouncements.

^b Assumed to pertain to pre-1939 territory.

^c Pertaining to all new territory.

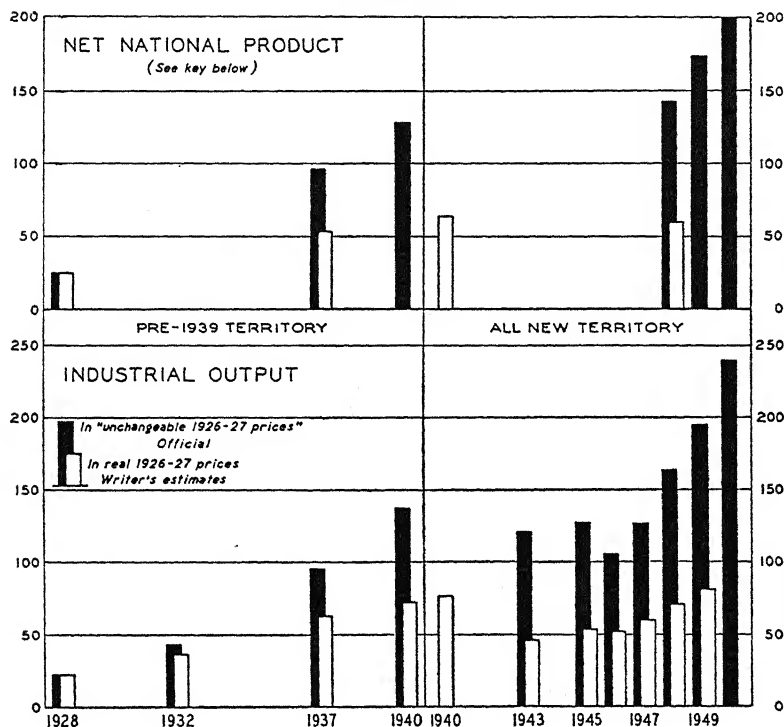
As here appraised, industrial output of the pre-1939 territory increased by 15 percent from 1937 to 1940. Six percent of the 1937 output of the same territory is counted as the output of the new territories in 1940.

After a severe drop during the war, the rapidly recovering industrial output seems, by 1949, to have been several percent above prewar. Even this level, while much below the officially indicated one, was nevertheless about 280 percent above the level of 1928. The officially computed annual rate of increase in indus-

trial output in the last three years, implying annual increases exceeding the total industrial output of 1928, is of course absurd, but even the increase here computed for *two years*, 1948 and 1949, equals the 1928 output and must be classed as very substantial, notwithstanding enlargement of territory and population.

USSR: NET NATIONAL PRODUCT AND INDUSTRIAL OUTPUT

(Billion rubles)



Of the two major groups of industrial products—producers' and consumers' goods—the producers' goods were the principal beneficiaries of the rise in industrial output, increasing about 360 percent during the two decades 1928–48. But the expansion in consumers' goods (over 140 percent), taken by itself, was by no means small (see the table on p. 17). The question will arise on several important occasions in subsequent discussion (of retail turnover, of share of net industrial production in gross industrial production, and, especially, of consumption levels): What did

the large additional output of consumers' goods during the Plan era consist of? Hence the question may be answered briefly here.

Gradual transfer of processing from homes to industry is, of course, a natural development. However, since home processing is not included in the statistics of industrial output and of national income, it is always a disturbing factor in the analysis. In natural ways and by artificial stimuli, this transfer of processing from homes to industry proceeded at a greatly accelerated rate in the USSR during the Plan era. The natural causes were the rapid increase in the proportion of urban population with its much smaller home processing (the urban population rose in proportion to the total from 17.9 percent in 1926 to 32.8 percent in 1939), and the greatly increased proportion of women among the wage earners (27.2 percent in 1929, 35.4 percent in 1937, and 37 percent in 1940). The artificial stimuli consisted in forcing consumers to purchase goods in more finally processed stages, either by charging disproportionately higher prices for goods in the lower processing stages (this was mostly attained by differential turnover taxes), or by making available for purchase only goods in the more advanced stages of processing. The great artificial disparity between the prices of flour and of bread has been mentioned elsewhere, along with the conspicuous (more than 6.5-fold) jump in sausage output during 1928-38,⁷ which could not have come about naturally. Complaints were frequent at times when there was no rationing that candy had to be purchased because sugar was not available in government stores. The same policy was certainly followed with reference to cigarette tobacco and cigarettes, and it is very likely to have been pursued with reference to cloth and clothing, hosiery and the material from which it is made, and many other things.

The overwhelming proportion of consumers' goods in the USSR consists of farm products or products processed from these. We have seen that the output of farm products increased only by about 15 percent from 1928 to 1937. Practically no further expansion occurred in the pre-1939 territory until 1940. The great apparent enlargement in the output of consumers' goods in those years, as shown in the table on page 17, must clearly have been caused almost exclusively by processing formerly not considered

⁷ Jasny, *The Socialized Agriculture of the USSR*, pp. 760-61, 642.

as well as by the additional processing of the same goods. In the statistics of gross industrial output, such additional processing not only is counted in full, i.e., including the value of the raw materials, but stands there at the higher value brought about by the additional processing.

It will be shown below that there was a great deterioration of the national diet during the peaceful years of the Plan era. Yet the industrial output of food products, as expressed in "unchangeable 1926-27 prices," increased from 6,296 million rubles in 1929 to 19,825 million rubles in 1938, or more than 3-fold,⁸ and the 1941 Plan sought to bring it to almost 5-fold the 1929 level. Bread consumption did not increase from 1928 to 1938 by more than the total population, i.e., by some 15 percent. Yet the industrial output of bread increased at least 4-fold, probably much more, from 1928 to 1938.⁹

Construction.—Construction is computed in the USSR only in current prices, but even such data are not available in detail after 1934. The comparability of the scattered data for the later years is not assured, even aside from the inflationary factor. The value of construction is here computed from approximations to capital investments given in Appendix Table I. Five percent was added for the construction involved in repairs. When the current prices are then deflated to the 1926-27 level, construction appears to have trebled from 1928 to 1937. Our estimates imply some further increase by 1940, which is by no means certain, and a still further rise by 1948.

Agriculture, industry, and construction.—In appraising the values of agricultural and industrial production and of construction, students commonly overlook the fact that even the real 1926-27 prices, let alone the bias-imparting "unchangeable 1926-27 prices," favored industrial production (especially the output of producers' goods) and construction at the expense of agricultural production. It is to be realized that a pound of wheat at 1926-27 farm prices in the USSR cost as much as 5.5 pounds

⁸ USSR Gosplan, Central Office of National-Economic Accounting, *Socialist Construction USSR, 1933-38* (Moscow, 1938), p. 77.

⁹ *Ibid.* This source gives the output of bread at 8.1 million tons in 1933 and 16.6 million tons in 1938. The baking industry was so unimportant in 1928 that no adequate statistics are available. The only figure which has been located is that of 251.5 million rubles for the value of output of small-scale bakeries in 1928-29. This is equivalent to, at most, 2 million tons of bread. Only a few large-scale bakeries operated at that time.

of coal f.o.b. mine, while in the United States 20.6 pounds of coal was the corresponding equivalent. Detailed but not final analysis indicates that, at wholesale prices and in round figures, the 1926-27 ruble was worth 70 U.S. cents in terms of farm products, 50 cents in terms of consumers' goods, 30 cents in terms of producers' goods, some 25 cents in terms of industrial construction, and so on.¹⁰ Hence, after outputs in the table on page 17 are recalculated to United States prices, the economic significance of the industrial output, especially of producers' goods, and of construction relative to agricultural production in the beginning of the Plan era, is considerably lessened. Furthermore, since agricultural output remained almost at a standstill during this era, the increase in the combined output of agriculture, industry, and construction during the era turns out to have been considerably less, if the computation is made in dollars rather than in rubles. This is obvious from the following tabulation, showing percentage increases for the three items together during the stated periods:

Period	Real 1926-27 prices	American 1926-27 prices
1928-37	126.4	88.0
1937-40	19.3	18.6
1928-40	170.1	122.9
1928-48	151.3	107.4

Transport.—The operation of the transport system was expanded as much as industrial output during the period under review.

Trade.—Retail trade, on the other hand, presents as poor a picture as does agriculture. We deal here with official data for 1928, 1937, and 1940, and a rough estimate for 1948. The figures cover state and co-operative trade except in 1928, for which private trade also is included. The turnover of kolkhoz markets¹¹ is disregarded, since the sales by producers direct to consumers in 1928 are not included. Both are peasant markets. In nominal prices, the increase in retail trade shown by such data was huge;

¹⁰ The conversion factors vary from year to year with the change in composition of the individual items. The figures in the text are based on the composition which prevailed immediately before the beginning of the Plan era.

¹¹ Markets where the kolkhozy and the kolkhozniki (collective farms and their members) and individual (noncollectivized) peasants are permitted to sell their own products at free prices.

the data in the following tabulation (in billion rubles) indicate an 8-fold to almost 10-fold increase in only nine years, from 1928 to 1937:

Year	Retail turnover
1928	13.5-15.8 ^a
1937	125.9
1940	175.1 ^b
1948	325.0

^a There seems to be some confusion in Soviet data on the 1928 retail turnover. The 1st Plan gave it for 1927-28 at 12.4 billion rubles (USSR Gosplan, *Five-Year Plan of National-Economic Construction [1st Plan]*, 3d ed., Moscow, 1930, Vol. II, Part 2, pp. 156-67). The turnover of restaurants, not included in the above figure, was estimated at 665 million rubles in 1927-28, and the 1928 retail turnover was larger than that of 1927-28 by 416 million rubles (USSR Gosplan, Central Office of National-Economic Accounting, *Socialist Construction USSR*, 1934, Moscow, 1934, pp. 362, 372; and *ibid.*, 1935, Moscow, 1935, p. 552). Hence the retail turnover including catering was equivalent to 13.5 billion rubles in 1928. Apparently without any explanation, the estimate for the 1928 retail turnover without catering was raised to 15,156 million rubles; with catering having amounted to 665 million rubles in 1927-28, the total became 15.8 billion rubles (the revised figures made their appearance for the first time in Central Office of National-Economic Accounting, *National Economy USSR: Statistical Handbook*, 1932, Moscow, 1932, p. 315). Again without explanation, *Socialist Construction USSR*, 1933-38, p. 110, gave the 1929 retail turnover including catering at 15.2 billion rubles. This estimate adjusted downward for the difference between 1928 and 1929 (this difference amounted to 1.7 billion rubles according to the cited statistical yearbooks) yields 13.5 billion rubles as the 1928 retail turnover including catering—exactly the estimate of the 1st Plan. Such downward revisions of data of former years, which make the data of later years look better, are normally manipulations in the USSR. See Jasny, *The Socialized Agriculture of the USSR*, pp. 725-27, 613-14, 643-45, on downward revisions of the grain output, of hay acreages, and of the meat output. Only a thorough investigation could show the truth with reference to the size of retail turnover.

^b As usual, the territory to which the official figure applies was not stated. It is likely that in 1940 the new territories were covered by the retail-trade statistics only to a small extent. Even so far as the USSR owned the new territories in 1940, state and co-operative trade could not have been established overnight. Furthermore, such trade as was established may have been left out of the statistics. The retail turnover of the Baltic States was not yet included even in the retail-turnover goal of the 1941 Plan (*1941 Plan, Supplement*, p. 590).

The picture changes fundamentally, indeed amazingly, as soon as those values are reduced to a comparable basis. Data for the USSR in the table on page 58 show that prices of consumers' goods were 9.0-fold, 13.2-fold, and 26.4-fold those of 1926-27 in 1937, 1940, and 1948 respectively (see also the Appendix Note and Appendix Tables III and IV below).

Those indexes are weighted by the purchases of urban workers. This writer is not in the position to supplement them with a computation of a price index of consumers' goods weighted by purchases of the rural population. Clothing and shoes weigh heavily in the acquisitions in rural areas and, as the table on page 58 shows, the price indexes of clothing and shoes were below the price index for all commodities in all Plan years. On the other

hand, the Soviet price policies forced the peasants, during the period here analyzed, to become heavy buyers of bread, which, as Appendix Table IV shows, increased in price more than the weighted price index of all commodities. To be on the safe side, the price indexes of commodities (1926-27 = 100), as computed here for urban workers, are reduced by about 10 percent—to 800 for 1937, to 1,200 for 1940, and to 2,400 for 1948—for the purpose of deflating retail turnover to 1926-27 prices.

Recalculated to a comparable basis with the help of those indexes, the retail turnover of 1937, 1940, and 1948, expressed in terms of 1928 prices (for consumers' goods these did not differ from those of 1926-27), was roughly as follows (billion rubles):

1928	13.5-15.8
1937	15.7
1940	14.6
1948	13.5

The results of the recalculations are, of course, startling, and one naturally looks for checks. Unfortunately, the only figures which might be used for this purpose, namely data on the personnel employed in trade, are not of the desired quality, but they certainly do not indicate any big error in the above value analysis.

The 1936 statistical yearbook listed for 1928 only 587,000 wage earners in state and co-operative trade, of which 532,000 were in trade proper and 55,000 in catering. Private trade was still very strong at that time, especially in sectors with small turnover per employed person. The 1928 handbook gave, for 1925-26, the total number of establishments in strictly trade at 717,558; in addition there were 52,436 restaurants, hotels, etc. Hence the total number of persons (wage earners and entrepreneurs) engaged in trade in the wide sense must have been several times that shown by the statistical yearbook for 1936.¹²

With the downfall of agriculture in the years immediately following 1928, trade proper declined considerably, while catering, profiting from specific price policies, was booming. The year 1932, by which time private trade had almost disappeared, must

¹² The 1936 yearbook referred to is USSR Gosplan, Central Office of National-Economic Accounting, *Socialist Construction USSR, 1936* (Moscow, 1936), pp. 506-09; the 1928 handbook is USSR Central Statistical Board, *Statistical Handbook USSR, 1928* (Moscow, 1929), p. 682.

have been the leanest or one of the leanest. For this and a few succeeding years, the number of wage earners in state and co-operative trade is compiled in the tabulation below (in thousands):

Year	Trade proper	Catering	Total
1932	1,411	515	1,926
1935	1,650	485	2,135
1937	1,993	396	2,389
1941 Plan	2,355	670	3,025

Data for 1932 and 1935 from USSR Gosplan, Central Office of National Economic Accounting, *Socialist Construction USSR, 1936* (Moscow, 1936), pp. 506-09. Data for 1937 from *3d Plan*, pp. 228-29. Data as planned for 1941 from *1941 Plan, Supplement*, p. 512.

The figure for 1941 is impressive until subjected to analysis. One must first take into consideration that it pertains to a larger territory than data for the earlier years. While the Baltic republics were not included, the other new areas may have been—of course, only so far as state and co-operative trade was established or expected to be established there during 1941. Much more important, however, appears the breakdown of the totals for the persons employed. The *1941 Plan, Supplement* gave the personnel for strictly trade, *i.e.*, without catering, under “trade, procurements, supplying.” The word translated “supplying” involves trade organizations serving state organizations. The addition of the words “procurements, supplying” in the 1941 Plan may imply that previously these categories of workers were not included under the personnel in trade, fully or in part. Those engaged in servicing state organizations, for example, may well have been included under subsidiary industrial workers, some indeed under “state organizations.”

The two principal organizations engaged in trade—the Commissariat of [Internal] Trade and the Tsentrsoyuz (Central Union of Consumers' Co-operatives)—whose combined turnover, without catering, was equivalent to 78.7 percent of total retail trade,¹³ were expected to employ fewer than one million persons for that purpose in 1941; of the 513,000 to be employed in retail trade proper by the Tsentrsoyuz, only 252,300 were to be over-the-counter clerks.¹⁴ Thus, from the total of 2,355,000 wage earners expected to be engaged in trade proper in 1941, there re-

¹³ *1941 Plan, Supplement*, p. 596.

¹⁴ *Ibid.*, p. 356.

mains a balance of nearly 1.5 million which cannot be fully accounted for. About 450,000 were listed as engaged in procurements of the Commissariats of Procurements and Foreign Trade, and of the Tsentosoyuz.¹⁵ Hundreds of thousands must have been used in wholesale trade and a similar number in what is here translated "supplying."

A total of little more than one million badly paid persons engaged in selling, per year, retail goods worth 13-14 billion rubles at 1926-27 prices seems reasonable. It probably leaves considerable room for an increased turnover per person.

To get at a definite answer with reference to changes in the personnel engaged in trade would require much more study than can be devoted to it at this time. However, though it cannot be assumed that the data on trade personnel confirm fully the conversion of retail turnover in current prices to real 1926-27 prices as made here, they do not indicate that anything is fundamentally wrong with it.

The importance of the recalculation of the retail turnover to constant values cannot be overemphasized. They reduce the Soviet indexes of industrial and other output, and of national income, to a joke. A retail-trade turnover of only 14.6 billion rubles in 1940 at real 1926-27 prices cannot, of course, be associated with an industrial output of 137.5 billion rubles or a national income of 125.5 billion rubles—both at "unchangeable 1926-27 prices." The Soviet claims of vast improvement of consumption levels go the same way as these indexes—to waste. To appraise properly the significance of a retail turnover of only 15.7 billion rubles in 1937 and 14.6 billion rubles in 1940, as against 13.5-15.8 billion in 1928 (at real 1926-27 prices), one must remember that the urban population rose by exactly 100 percent from April 1, 1928 to January 17, 1939, and that the per capita purchases of farm products and industrial goods by the urban population were about 4-fold those of the rural population in 1927-28.¹⁶

¹⁵ *Ibid.*, pp. 527, 536-37.

¹⁶ According to *1st Plan*, Vol. II, Part 2, p. 72, the per capita purchases of industrial goods by the urban population amounted to 104.5 rubles in 1927-28. Since the total purchases of farm products by this population were 26 percent larger than the purchases of industrial goods, the total per capita purchases of all goods, i.e., industrial and farm (including those in peasant markets), amounted to 246 rubles. The per capita purchases of the rural population in the same year and according to the same source (p. 74) amounted to 35.2 rubles (industrial goods) and 24.2 rubles (farm products), or a total of 59.4 rubles. Part of these purchases were

So far as concerns *changes* in retail turnover in real 1926–27 prices after 1928, one must consider that the 1928 retail turnover comprised a certain proportion of producers' goods, and that the share of these goods declined drastically thereafter. The writer is not prepared to say how much the 1928 retail turnover should be reduced to make it comparable in composition with the turnover of 1937 and later years. If the comparable 1928 figure is assumed to have been 10 percent smaller than the actual one,¹⁷ the 1928 estimates are reduced to 12.3–14.3 billion rubles, and the increase from 1928 to 1937 was equivalent to 10–28 percent. With the rather moderate increase in *total* population, the near doubling of the *urban* population, and the compulsory commercialization of the retail turnover, even the larger percentage increase implies a very substantial decline in per capita purchases of consumers' goods in physical terms by the rural and the urban population. The decline was enormous if the higher of the two retail-turnover figures shown or implied for 1927–28 or 1928 in the official 1932–36 statistical yearbooks is correct.¹⁸

NET NATIONAL PRODUCT

Agriculture.—While gross agricultural production¹⁹ increased, according to official data, from 15.5 billion rubles in 1927–28 to 20.1 billion rubles in 1937 (“unchangeable 1926–27 prices”) or by around 30 percent, net agricultural output, or the contribution of agriculture to net national product, is supposed to have jumped from 9.2 to 14.9 billion rubles, or 62

producers' goods; on the other hand, the figures do not include the local purchases of farm products by the rural population. According to the same source (p. 76), the total purchases of industrial consumers' goods by the rural population were only 8.3 percent higher than those of the urban population. Since the rural population was 4.4-fold the urban population, the per capita purchases of industrial goods by the urban population were more than 4 times as large as those of the rural population.

¹⁷ In this assumption I am guided by the breakdown of the turnover by type of goods in 1925–26 as published in *Statistical Handbook USSR, 1928*, pp. 680–83, as well as by the data on the major industrial goods sold in the broad markets in 1928–29 as published in USSR Gosplan, *Control Figures of the National Economy USSR for 1929–30* (Moscow, 1930), p. 564.

¹⁸ Assuming an increase in urban population from mid-1928 to mid-1937 of 70 percent, with the rural population declining by 8 percent, and with the purchases of the urban population 4 times as large as those of the rural population, a 37-percent increase of retail turnover in consumers' goods would have been needed, just to retain the former per capita status of each group of population, without taking into account the results of the considerable amount of commercialization of retail turnover in excess of that caused by the farm-to-town movement.

¹⁹ Gross output of agriculture, industry, and so forth, as this term is used in the USSR, represents the gross return to the producers before deducting any costs. Net output is gross output minus the cost of materials and depreciation charges.

percent. The writer's computations in real prices indicate about the same increase for both gross and net farm production—around 15 percent—in those years.²⁰ The manipulation in the official estimates reveals itself as soon as one looks more attentively.²¹

A similar analysis of the official data for later years is impossible, because data on national income, so far as released at all, were only stated in one figure. But there was certainly no more improvement in Soviet statistics after 1937 with reference to the computations of net contributions of the individual economic sectors to national product and income than with reference to anything else.

Industry.—While gross industrial output in “unchangeable 1926–27 prices” rose from 21.8 billion rubles in 1928 to 95.4 billion in 1937, or by 338 percent, net industrial production or its contribution to the net national product allegedly grew from 8.7 billion rubles in 1928 to 50.9 billion rubles in 1937, or by 485 percent according to official data. The net industrial output was 39.9 percent of the gross output in 1928, rose to 53.3 percent in 1937,²² and was expected to rise even higher in 1942.²³

There were various factors in operation which affected the share of net industrial output in gross output during the Plan era, if both are computed in real 1926–27 prices. Low labor productivity in the base year and improvement in subsequent years was the principal factor among those tending to increase this share. Savings on materials and a rising proportion of producers' goods with their large share of net in gross output were the two other factors operating in the same direction. The great increase in repeated processing, moderately important with reference to producers' goods (“co-operation” of factories in turning out one final product), but immensely important with reference to consumers' goods, was the principal counteracting factor. This factor, it is true, had an offsetting factor of its own in the increased rate of fabrication, i.e., in using raw materials for the output of

²⁰ Jasny, *The Socialized Agriculture of the USSR*, p. 775.

²¹ *Ibid.*, chapter xviii.

²² I. Krasnolobov, “Factors of Growth of National Income in Socialized Society,” *Problems of Economics*, 1940, No. 9, p. 62.

²³ According to S. N. Prokopovitch, it was to become 69.7 percent in 1942. See his *Russlands Volkswirtschaft unter den Sowjets* (Zürich-New York, 1944), p. 359. But this seems to have been an error.

more valuable products, as for example, in using steel for the output of automobiles rather than pots, but the second factor obviously was only minor if industry is taken as a whole. All enumerated factors would have been effective under any conditions. The use of "unchangeable 1926-27 prices" brought an additional important factor for raising the share of net in gross industrial output, in that the "unchangeable 1926-27 prices" of finished goods were rising much more strongly than similar prices of raw materials.

Soviet writers who attempted to explain the great jump in the share of net industrial output from 39.9 percent of gross output in 1928 to 52.4 percent in 1937 naturally had to stress the factors which tended to raise this share (increased labor productivity, savings on materials, enlarged share of producers' goods in the total output, enhanced rate of fabrication), while shutting their eyes to the two big counteracting factors.²⁴ Foreign analysts repeat this line of explanation especially favoring the increased rate of fabrication. It is impossible to estimate in Washington whether, on balance, the share of net industrial output in the gross output was increasing or declining during the Plan era. While the writer assumes a quite substantial increase—to 45 percent in 1937 and 47 percent in 1940—this is by no means established.

There is, however, Soviet evidence which throws at least some light on the problem, though it is never adduced in connection with it. This is the distribution of production costs, computed in current prices, by items. The *strong rise* of the share of net in gross industrial output claimed officially in the estimates of national income in "unchangeable 1926-27 prices" implies a proportionate *decline* in the share of raw materials and depreciation charges, which make up the difference between gross and net industrial output. Yet the share of these same items in production costs computed in current prices shows the *strong increase* from 59.5 percent in 1928 to 75 percent in 1940.²⁵ The huge rise in turnover taxes, which is difficult to eliminate, had a part in this development. The taxes on the raw materials are part of production costs, but the taxes on the final product are not considered in computing the production costs. There was, however, a powerful

²⁴ See, for example, Krasnolobov, *op. cit.*, pp. 46-65.

²⁵ Sh. Turetskii, *Intra-Industrial Accumulations in the USSR* (Moscow, 1948), pp. 36-37.

counteracting factor in that wages rose some 75 percent more than the cost of raw materials without the turnover taxes in 1928-40.²⁶

The effect of the great increase in turnover taxes on the composition of production costs in industry is to a large extent eliminated if, in the above comparison, 1932 data are substituted for those of 1928-29. The share of raw materials and depreciation in production costs of the total industrial output in 1932 and 1940 was as follows (in percent):

Item	1932	1940
Producers' goods	51.2	64.1
Consumers' goods	77.1	86.5
Total	a	75.0

Data from Turetskii, *Intra-Industrial Accumulations in the USSR* (Moscow, 1948), pp. 47, 105.

^a Turetskii did not state the figure but it certainly was considerably less than 75 percent.

Thus the rise in the share of materials and depreciation charges in total production costs was quite substantial also in the period 1932-40. The rise in the share of materials was the result of increasing labor productivity, more processing operations, and the continued rise of turnover taxes though at a diminishing rate of increase. The counteracting factor of the more rapid rise in wages than in prices of raw materials also lost much of its strength.

Space precludes pursuing the topic further. But the contradiction between the great curtailment in the share of materials and depreciation in the value of gross industrial output, computed in "unchangeable 1926-27 prices," and the rise in the share of the same materials in the production costs of gross industrial production computed in current prices, is evident. The contradiction is certainly realized by the Soviet analysts, and this is, presumably, the reason why the two topics are never discussed simultaneously.

Trade.—Analysis of the Soviet economy naturally concentrates on industry and agriculture. Hence the fantastic manipulation of the contribution of trade to national income in official Soviet statistics escapes attention. As has been shown above, retail turnover in current prices expanded by 712-853 percent from 1928 to 1937, but by volume it increased only by 10-28

²⁶ Wages increased 477 percent according to official data, the prices of raw materials perhaps 200 percent according to chapter i of the writer's *Soviet Prices of Producers' Goods*.

percent. National income from trade is nevertheless alleged to have expanded by not less than 548 percent during those years and to have amounted, in 1937, to 11.8 billion rubles ("unchangeable 1926-27 prices"), or to 75 percent of the gross turnover of retail trade computed in real 1926-27 prices. This in a country which vociferously proclaims its small trade margins! How could this be achieved? The answer is simple—by disregarding the rapidly advancing monetary inflation.²⁷

Writer's index.—The corrected indexes of net national income (Soviet concept) are shown in the chart on page 23. They are reproduced here for convenience, together with the official estimates (billion rubles at 1926-27 prices):

Year	Official	Writer
1928	25.0	25.0
1937	96.3	53.2
1940 ^a	128.0	64.0
1948	143.0 ^b	60.0

^a The official figure is that as revised after the war; it still may not have included all the postwar territory. The writer's estimate is for the postwar territory.

^b Implied in official pronouncements.

The 1948 figure was estimated in the crudest way. The more detailed estimates for 1937 and 1940 are as follows (billion rubles at 1926-27 prices):

Sector	1937		1940 ^a
	Official	Writer	Writer
Industry	50.9	26.9 ^b	34.3 ^b
Agriculture	14.9	10.3 ^c	11.9 ^c
Construction	12.5	5.8 ^d	6.0 ^d
Transportation	5.2	5.2	6.5
Trade	11.8	4.0 ^e	4.3 ^e
Other	1.0	1.0	1.0
Total	96.3	53.2	64.0

^a The breakdown of the official total was never published.

^b These figures are 45 and 47 percent of the gross output respectively.

^c From Jasny, *The Socialized Agriculture of the USSR*, p. 680, with the 1940 estimate raised to take care of the new territories.

^d This figure is 45 percent of gross construction as shown in the table on page 17.

^e The 1928 official figure was adjusted to take care of the changes in retail turnover in real 1926-27 prices (see p. 28). The 1940 figure is higher than that of 1937 to account for the turnover in new territories not included in full in the official turnover data.

²⁷ A statement by Krasnolobov, an informed Soviet analyst, indicated that at least the turnover taxes were deducted in computing the national income from trade. Closer analysis, however, shows that even this was not done. Krasnolobov's statement was made in a book not available to the present writer, but the statement is reproduced in Prokopovitch, *op. cit.*, p. 364. For details on contribution of trade to national income and some related problems see *The Soviet Price System*, chapter v.

Not only the 1948 estimate is crude; all of them are. The one for 1948 is merely cruder than the others. Net national income rose 113 percent from 1928 to 1937 as against the official rise of 285 percent and the increase in industrial output, as here computed, of 187. Severe cuts from the official estimates were made in all items except transportation, but the greatest cuts were made in items usually given smaller attention. The writer's estimate for the contribution of trade to national income is little more than one-third the official figure, and the contribution of construction is less than half the official.

National income as here computed for 1940 was 21 percent above that of 1937, partly, of course, owing to the inclusion of the new territories in the 1940 estimate.

As to 1948, the writer is certain only that the prewar level was not reached. Sixty billion was used as a round figure.

While in 1928 national income was larger than gross industrial production, it became—properly computed—substantially less than this by 1937. The small increases in trade and especially in agriculture, with its originally large share in total national income, are responsible for this shift. Even official estimates of national income, much more manipulated than the gross industrial production, lost out against industrial output. In 1928, the official estimate of national income was 15 percent larger than that of industrial output; in 1937 the two were almost equal. In subsequent years official estimates of gross industrial output increasingly exceeded those of national income.

As stated in the introduction, the writer, at least for the time being, refrains from converting his national-income estimates to dollars.

Other analysts.—According to Julius Wyler, the net national product of the USSR was as follows:

Year	Billion dollars at 1940 prices	Indexes
1928	20.2	100
1937	37.8	187
1940	45.1	223

Data from Wyler, "The National Income of Soviet Russia," *Social Research*, December 1946, XIII, 510.

Wyler's figure of 20.2 billion dollars for the net national

product of the USSR in 1928 compares with about 13.5 billion rubles, the official Soviet figure, raised to allow for the difference between the Soviet and American concepts and converted to dollars at the official exchange rate. The excess of Wyler's estimate is so large in spite of the fact that the rubles spent on investment had only a low exchange value to dollars. Aside from the much higher prices of farm products, the following factors tended to raise Wyler's estimate: (1) the large trade margin in the United States; (2) the evaluation of services at relatively high rates; and (3) the appraisal of the home-produced consumption of the farmers, which constitutes a relatively large part of the Soviet national income, at retail prices.²⁸

Wyler's estimates imply an increase in Soviet net national product of 87 percent from 1928 to 1937. His method of appraising services tended to enlarge the increase in Soviet national product during 1928-37, relative to the computation in 1926-27 prices made here. But the effect of this procedure was considerably overcompensated by the effect of the low wholesale prices of industrial goods, relative to farm prices in the United States, and by the estimating of the consumption of the peasants in kind at retail prices. With consideration of the trend-enhancing and trend-retarding factors, the increase in national income of 87.1 percent in 1928-37, as computed by Wyler, checks reasonably well with the increase of 113 percent in the same years, here reckoned quite independently.

Wyler reckoned the increase in net national product from 1937 to 1940 at 19.3 percent, as against 21 percent accepted by the writer. Actually Wyler's estimate of the increase is larger, because the writer's estimate for 1940 undertook to cover all territories added to the USSR, even those added after the war, while Wyler's estimate was for the prewar territory. The reason for Wyler's being higher probably lies in his high evaluation of the maintenance of armed forces, which were greatly expanded during the intervening period.

Baran's computation of Soviet gross national product and national income in 1940 is widely used and therefore merits more

²⁸ Wyler, "The National Income of Soviet Russia," *Social Research*, December 1946, XIII, 508. The procedure under (3) has distinct advantages; on the other hand, it is equivalent to including, in the national income, services which were not performed.

detailed analysis.²⁹ Baran begins with a statement by M. Kolganov, a Soviet expert on national income, that in terms of 1926-27 prices, in which the Soviet national income for 1937 totaled 96.3 billion rubles, the national income of the United States in 1929 amounted to 206.8 billion *rubles*. Baran applied the implied percentage difference to the 1929 United States national income at factor cost in *dollars* (after this was reduced to the Soviet concept by Kolganov) and obtained a 1937 Soviet national income of 26.04 billion dollars at 1929 prices (the two decimal places here and below are definitely Baran's). Such change-overs from relationships in terms of Soviet 1926-27 prices to relationships in terms of American prices, and vice versa, without any adjustments, are unjustified.

"Unchangeable 1926-27 prices" of the 1937 vintage must have been involved in the computation by Kolganov of the value of the United States national income, and these prices greatly favored industrial products, especially machinery, so important in the United States. The national income of the United States must therefore have exceeded that of the USSR by a considerably greater percentage in "unchangeable 1926-27 prices" than it would have done in dollars, and the application of this percentage to dollar values has resulted in an underestimation of the Soviet national income. In other words, the Soviet estimate of 96.3 billion rubles as the 1937 net national product at "unchangeable 1926-27 prices," directly converted to dollars with the help of properly computed price indexes, would yield a substantially higher dollar figure at 1929 American prices than that by Baran.³⁰

Having arrived at the estimate that 1937 Soviet national income was equivalent to only 26.04 billion dollars at 1929 American prices, Baran should have drawn the conclusion that the official Soviet computations of the increase in national income should not be used.³¹ He was therefore inconsistent in applying

²⁹ P. A. Baran, "National Income and Product of the U.S.S.R. in 1940," *Review of Economic Statistics*, November 1947, XXIX, 230 ff.

³⁰ This is obvious from the effect of conversion of the Soviet agricultural and industrial output in real 1926-27 prices to dollars in the table on page 17, and from the fact that Wyler's figure for the 1937 Soviet net national product in dollars turned out so much higher than Baran's figure for national income at factor cost (37.8 million dollars at 1940 prices as against 26.04 billion dollars at 1929 prices), although in 1940 wholesale prices were substantially below those of 1929 in the United States.

³¹ An interesting case of absurdity arrived at by use of the official indexes of national income is provided by the League of Nations. By using the official indexes on the increase

to the 1937 Soviet national income, as he computed it in dollars, the exaggerated official percentage (30.3 percent) for the increase of Soviet net national product from 1937 to 1940 in terms of "*unchangeable 1926-27 prices.*" Baran's two errors partly or fully offset one another. Provided the services of civil servants, soldiers, liberal professions, and so on, are charged at the value of commodities and services they receive in the USSR rather than in the United States and with the trade margin also that of the USSR, Baran's figure of 31.10 billion dollars at 1940 American prices must be a reasonable approximation to the 1940 Soviet national income. But Baran did not stop here.

Having once freely shifted from Soviet "*unchangeable 1926-27 prices*" to dollars, having next adjusted the obtained figure with the greatly exaggerated percentage derived from data in "*unchangeable 1926-27 prices,*" Baran in his final step makes an even less justified shift to relationships in *Soviet 1940 prices.* He raises his computed 1940 Soviet national income of 31.10 billion dollars at 1940 American prices by not less than 42.9 percent—the percentage difference between his computed Soviet national income at factor cost and gross national product in 1940 Soviet prices; and he treats the figure obtained as the 1940 Soviet gross national product in *1940 dollars.* This is equivalent to the assumption that the exorbitant turnover taxes operated also in the United States.³²

in net industrial output from 1926-27 to 1936-38, the League of Nations arrived—and, on the surface, correctly—at the fantastic figure of 57.5 percent as the relationship of Soviet industrial output to that of the United States in 1936-38. Yet according to computations of official Soviet investigators, who certainly were anxious to make the relation of Soviet industrial output to that of the United States as high as possible, the 1937 industrial output of the USSR was only 32.7 percent of that of the United States. These inconsistencies are analyzed in Jasny, "Intricacies of Russian National-Income Indexes," *Journal of Political Economy*, August 1947, LV, 307-10.

³² In the United States, the 1929 gross national product exceeded national income only by 17.9 percent. U.S. Dept. Comm., *National Income and Product Statistics of the United States, 1929-46, Survey of Current Business, Supplement*, June 1947, p. 20.

There are more errors in Baran's analysis which cannot be gone into here. For example, in shifting from gross national product to national income at factor cost in 1940 at 1940 Soviet prices, he deducted all proceeds of turnover taxes. But part of turnover taxes rests on raw materials and is thus part of factor cost.

While Baran's errors were avoidable, their occurrence was greatly facilitated, and indeed made excusable, by the fact that Baran operated with values while unfamiliar with the prices in which the values were expressed. A similar analysis by Bergson will be discussed in another place.

CHAPTER III

ALLOCATION OF NATIONAL INCOME: I

The primary data pertaining to allocation of Soviet national income are mostly expressed in current prices. As stated previously, it is erroneous in dealing with these prices to regard one ruble expended at current prices as equivalent to another such ruble. If all rubles are to be treated alike, the investigator must as a minimum (1) subtract the turnover taxes from the amounts spent, and (2) add to the amounts spent the direct and indirect subsidies from the treasury. The elimination of turnover taxes will primarily affect consumers' goods, while producers' goods, which in the USSR include armaments, will be almost the only goods affected by the consideration of subsidies. The difficulties involved are discussed in *The Soviet Price System*, chapter vi.

The turnover taxes amounted to about 60 percent of the retail prices of consumers' goods in 1937 and later years. In 1948, state subsidies to the national economy were equivalent to perhaps 70 billion rubles; on certain important goods, such as lumber and steel, the subsidies were at least equal to their prices. The bulk of the subsidies went to goods used either in new investment or for "defense." Obviously, the relation between the rubles spent on consumer's goods and, for example, the rubles spent on armaments will be fundamentally changed when 60 percent is subtracted from the former and a substantial percentage is added to the latter.

The writer does not accept one ruble in the budget or elsewhere as equivalent to every other ruble. In converting each item of expenditure to values at real 1926-27 prices, the probable composition of very high-priced consumers' goods, medium-priced labor, and low-priced producers' goods and munitions is considered. On the basis of a familiarity with the prices themselves (by no means always exact), separate conversion factors have been worked out for the principal items of budgetary expenditures or allocation of national income, partly with subdi-

vision of the individual items into the most important components.¹ This procedure obviously excludes the necessity of adjusting for either turnover taxes or subsidies.

The vagueness of the material on which the computations here undertaken are based has already been mentioned. In dealing with allocation, the analyst is entirely on his own in estimating consumption by the farm population in kind (i.e., produced and consumed without going through any market), especially in 1940 and later years. Almost nothing was officially made known about wages, total wage bill, and retail turnover in postwar years. The available data are huge lump sums, with no breakdowns. Examples are 1948 expenditures of 66.3 billion rubles on defense and 55.1 billion rubles for education, with no subdivisions.

Budgetary appropriations on the national economy in 1948 amounted to 147.5 billion rubles, of which 57.2 billion were spent for capital investments in state enterprises, 10.7 billion for increase of owned (not borrowed) variable capital of these enterprises, and perhaps 12 billion on the operational expenses of the machine-tractor stations (appropriations for them were not specified in postwar years). Thus over 70 billion rubles remains unaccounted for in 1948. The corresponding amounts unaccounted for were about 11 and 13 billion rubles in 1937 and 1940 respectively. There is extremely little information about the destination of these sums. Rovinskii, who may properly be considered an official commentator, said on this matter, after having mentioned capital investments and additions to the variable capital of state enterprises: "Out of the budget, means are also allocated to state organizations for operational expenses and state subsidies."² What state subsidies are is easily understandable. About operational expenses, Rovinskii added:

Operational expenses of state organizations are inputs, not connected with their production activities and not included in production costs, such as industrial resettlement, recruiting of labor, forest preservation, geological surveying, inventions, etc.

The operational expenses of the MTS were mentioned above. Otherwise, the operational expenses involved in this case must be minor items, unless the outlay on atomic-bomb research is con-

¹ Budgetary expenditures are as expended rather than as planned.

² N. N. Rovinskii, *State Budget of the USSR* (Moscow, 1949), p. 88.

cealed here. It would indeed fit marvelously well under the heading of invention or geological survey. The writer would feel certain that this were the case, if he did not think that the 70 billion rubles unaccounted for in 1948 were fully, or almost fully, required for subsidies and were therefore unlikely to have been able to accommodate large expenses on the atomic bomb.

Rovinskii placed state subsidies last in his enumeration. In the 1944 edition of his book, he even had the effrontery to refer to subsidies in this way: "The budget provides the means for the operational expenses of the state organizations and in isolated cases for state subsidies to the state enterprises."³ The present writer is unable to account fully, and for each year, for all amounts which remained from the budgetary appropriations for the national economy after the contributions to capital investments and to variable capital of state organizations and the operating expenses of the MTS were deducted. But in his opinion, and contrary to the opinion of others,⁴ the bulk of those sums represented subsidies to state enterprises for coverage of their losses. The year 1948, however, is not one whose unaccounted-for appropriations on national economy cause serious difficulties to the writer.

The production costs of producers' goods were very much higher than—in some instances multiples of—their prices in 1948. The transport system also operated at substantial losses. Industry and transport may well have required, in the way of subsidies, practically all the roughly 70 billion rubles unaccounted for, except for such subsidies as were needed by the state farms and constructing organizations, and for housing other than that of the industrial and transport enterprises and of the state farms, which is included in their general operations and has already been considered above. The writer would indeed not be surprised if it turned out that some additional funds were used to cover all those huge losses, for example, part of the excess of budgetary income over expenditures.

It seems more difficult to account for the corresponding balances, roughly 11 and 13 billion rubles, in the 1937 and 1940 budgets. In his 1941 budgetary report, Zverev said that 2.5 bil-

³ N. N. Rovinskii, *State Budget of the USSR* (Moscow, 1944), p. 66.

⁴ They seem to have been trapped by Rovinskii's elusive statement in the 1944 edition.

lion rubles were allotted to the financing of the sovkhozy (state farms) of the Commissariat of State Farms;⁵ a substantial portion of this amount must have been subsidies. While this commissariat controlled the greatest number of sovkhozy, sovkhozy were also operated by a number of other commissariats, including the Commissariats of Agriculture, the Food Industry, and Foreign Trade. The losses of the timber and lumber industries were heavy in 1940. Some coal trusts, the industry producing newsprint (important for Soviet propaganda), and some other industries certainly involved losses. The same probably was the case with river transportation, a chronically sick baby of the Soviet economy.

Let it be stated in conclusion that there seems to be no reason to assume that capital investments are financed out of the moneys here discussed (balance of the appropriation on national economy after deducting the amounts earmarked for capital investments and additions to variable capital). Such appropriations would not have been included in the appropriation so earmarked, because the Soviets are too anxious to advertise their capital investments. The "basic funds"⁶ of the economy—another important propaganda item—are determined by adding gross investment and subtracting depreciation to and from the basic funds at the end of the preceding period. The 2d Plan, for example, called for completed capital investments amounting to 132 billion rubles and an increase in basic funds by 110 billion rubles during the Plan Period,⁷ the difference between the two figures representing mainly depreciation charges. Underestimation of capital investments would lead to underestimation of the rise in basic funds.

Similarly, it seems not very probable that enlargement of owned variable capital of the state enterprises is financed from the budgetary appropriations under consideration, in addition to the financing out of the appropriation earmarked for this purpose.⁸

Before turning to the figures themselves, a few words on the items to which they pertain are in order. Investments, as handled in the Soviet Union, include the investments in factories produc-

⁵ A. G. Zverev, *State Budgets of the USSR, 1938-45* (Moscow, 1946), p. 109.

⁶ Basic funds are fixed investments of gainful and nongainful nature, i.e., factories, houses, schools, hospitals, and so on.

⁷ *2d Plan*, I, 303.

⁸ The emphasis is on *owned* variable capital, because *borrowed* variable capital is provided from other sources.

ing armaments; military airfields; public roads, and all other improvements at government expense (soil conservation, irrigation, forest conservation,⁹ and the like); schools; hospitals; administrative buildings; and so on. Investments in school buildings are in addition to the direct appropriations for education. On the other hand, the appropriation for education finances propaganda and press, as well as military schools, academies, and possibly all or part of the atomic research. There is a possibility that expenditures on military hospitals, sanitariums, etc., are covered from general appropriations on these items. The expenditures on "defense" comprise not only those earmarked for this purpose and those coming from the appropriations for capital investments, additions to the variable capital of state organizations, education, and possibly health as well as from some other sources, but are further augmented by part of the appropriations of the Ministry of Interior (MVD, formerly NKVD). While all expenses on defense above those earmarked are quite substantial, only the earmarked expenses are considered in the material tabulated here. The expenses on education analyzed below likewise are those earmarked in the consolidated budget.

NET INVESTMENTS

The discussion above seems to justify the assumption that all state capital investments or additions to fixed capital, and additions to the *owned* variable capital of state enterprises, are so earmarked. Errors may therefore occur only in such items as capital investments of kolkhozy (collective farms) or permanent additions to the *borrowed* variable capital of the state enterprises.¹⁰ This is a considerable consolation, because the variable capital was much more affected by the inflation than were capital investments. A few billion rubles, more or less, invested in variable capital, especially in later years, does not really amount to much. Capital investments other than of the state likewise were minor items during the Plan era. Private investments are wholly neglected here, except for 1928. So far as private investments still

⁹ Forest preservation, it is true, is listed by Rovinskii (see above) as financed out of moneys other than those assigned for capital investments.

¹⁰ The latter are financed from the budgetary surpluses over expenditures and from new money put in circulation. These means become available to the enterprises by way of state banks.

occurred during the Plan era, they must have been financed out of moneys classed as private income here. If they were to be considered, the outlays involved would have to be subtracted from private incomes.

The preliminary findings on net investment are presented in some detail in Appendix Table I with a certain amount of documentation. Net investments are first estimated in current prices and then converted to real 1926-27 prices; the latter are again converted to dollars at 1926-27 prices. The factors for conversion from current to real 1926-27 prices, and from real 1926-27 prices to dollars at prices of the same year, are specified in Appendix Table I. In summarized form the findings, with those of other analysts, may be recapitulated as follows:

Item	1928	1937	1940	1948
Partly official (billion rubles at current prices) ^a	4.66	46.0	59.4	119.2
Bergson (billion rubles at current prices) ^b.....	....	58.8	....	....
Wyler (billion rubles at real 1926-27 prices) ^c	4.84	22.0	24.4	27.2
Writer (billion dollars at 1926-27 prices).....	1.50	6.4	7.8	7.9
Wyler (billion dollars at 1940 prices) ^c	1.3	4.6	5.7	....
Clark (billion international units) ^d	1.11	3.62 ^e	....	....

^a Nominal, i.e., not including subsidies.

^b Bergson, "Soviet National Income and Product in 1937. Part II," *Quarterly Journal of Economics*, August 1950, LXIV, 435. This estimate was arrived at as a balance. It contains all budgetary appropriations on the national economy except for operational expenses of the MTS. Bergson apparently no longer holds to this estimate.

^c Wyler, "The National Income of Soviet Russia," *Social Research*, December 1946, XIII, 512.

^d Clark, "Russian Income and Production Statistics," *Review of Economic Statistics*, November 1947, XXIX, 217.

^e Data for the year 1938.

Thus, in comparable terms (U.S. dollars), net investments more than quadrupled from 1928 to 1937. The figures in the tabulation above indicate that net investments, including stockpiling, were about 10 percent higher in 1940 than in 1937 (in real 1926-27 prices), and increased a further 11 percent by 1948. The trend in net investments may well be reflected correctly in these findings, but moderate differences cannot be fully trusted in view

of the nature of the data. Indeed, it seems quite possible that the 1940 and 1948 figures have been overestimated as compared with that of 1937.

The increase in net investments here computed in dollars from 1928 to 1937 (exactly 4.3-fold) is higher than reckoned by Wyler (3.5-fold) or Clark (3.3-fold in 1928-38). Possibly these authors tried to get at *real* net investments, a job not undertaken by the writer. All that was done was to establish the items treated in the USSR as net investments and to reduce them to a comparable basis so far as prices and costs are concerned. Actually the net investments as stated in Soviet sources are exaggerated. Official allowances for depreciation never were adequate and for long periods were very inadequate. Defective construction, widespread in the USSR; miscalculations, etc., which speed deterioration and/or necessitate changes; waste on a large scale—all these appear at full expended costs in accounts of net investments. All losses of private capital are commonly disregarded in official computations of investment and of basic funds.¹¹ Net investments are therefore considerably less than appears in Soviet pronouncements. However, all the procedures which reduce the net investments do not alter the fact that certain sums are not permitted to be used for private consumption but are directed to investment.¹² The size of the amounts so directed is one of the subjects of interest here.

EXPENDITURES ON THE ARMED FORCES

The total expenditures on the armed forces consist of those earmarked in the budget for this purpose and of those not so earmarked. While the latter are impossible to estimate, one may be certain that they are large. It is therefore regrettable that some analysts fail to give sufficient emphasis to the expenditures not specifically earmarked as military and, on occasion, even neglect to mention them.

Not earmarked.—It has been mentioned that the cost of con-

¹¹ This is partly offset by the fact that private investment was neglected in the computations presented in Appendix Table I, except in the official 1928 figure there used, which covers all net investment. But private investment was very small, possibly infinitesimally so, in most years of the Plan era, and certainly could not offset much of anything.

¹² The exaggerated investments in large part obviously appear also on the asset side of the ledger.

structing factories producing armaments, barracks, military air-dromes, and other such investments is included under capital investments in Soviet terminology.¹³

It is the merit of Gardner Clark of Cornell University¹⁴ to have drawn attention (strictly from official sources) to the large utilization of iron and steel in the output of munitions and in construction of munitions plants in the USSR away back in peace years. Evidence only through 1938 is available. In 1937 and 1938 respectively, 23.2 and 29.2 percent of the total output of iron and steel were used in the output of munitions. The consumption of iron and steel on constructions of military nature amounted to 24.7 and 30.6 percent, in 1937 and 1938 respectively, of the total utilization for construction. The large share of munitions in iron and steel used for construction also implies a substantial share of "defense" in total capital investments in years when earmarked military expenditures of the USSR were still small as compared with those in succeeding years.¹⁵

The *1941 Plan, Supplement* (pp. 483-85) contained the following items of military nature among the appropriations for capital investments:

Commissariat	Million rubles
Aviation industry	3,854
Ammunition	1,710
Armaments	1,036
Principal office of military construction.....	80
Total	6,680

The portion of the 1941 capital investments of the Commissariat of Aviation which was to serve civilian needs was certainly negligible. On the other hand, part of the large appropriation for the capital investments of the NKVD, especially for its extensive road construction, must have been of a military nature.¹⁶ The total for capital investments as specified in the 1941 Plan was 37,000 million rubles, but the Commissariats of Transportation,

¹³ So far as munitions factories are privately owned in this country, their costs of construction are not part of the defense budget either.

¹⁴ Gardner Clark, "Some Economic Problems of the Soviet Iron and Steel Industry" (unpublished dissertation, Cornell University), p. 42.

¹⁵ The figures are 17.5 and 23.2 billion rubles in 1937 and 1938, as against 39.2 and 56.7 billion rubles in 1939 and 1940, respectively.

¹⁶ The total appropriation for the capital investments of this commissariat was 6,810 million rubles, of which 2,675 million were for road construction (*1941 Plan, Supplement*, pp. 483-85).

Defense, and Navy were not included. Also all figures thus far mentioned pertain to so-called *centralized* capital investments. N. A. Voznesenskii gave the total for these investments as planned for 1941 at 48 billion rubles.¹⁷ Thus the unaccounted-for centralized capital investments amounted to 11 billion rubles, a large part of which must have been the share of the Commissariats of Defense and Navy.¹⁸ Part of the *decentralized* capital investments (9 billion rubles) also was of a military nature. The total capital investments for military purposes may well have been planned at nearly 15 billion rubles—a huge amount, considering the relatively high purchasing power of money spent on construction and machinery in 1940. But, of course, participation in World War II was seen as inescapable early in 1941, when the Plan was approved.

The budgetary appropriations for enlargement of *owned* variable capital of state enterprises may include this for the commissariats engaged in output of munitions.

The expenses on military schools and academies¹⁹ and possibly all, or part, of the atomic-bomb research are included among appropriations on education. Part of the appropriation for the MVD (Ministry of Interior), formerly the NKVD, is likewise to be regarded as an item of defense against the external rather than the internal enemy. In 1937, the total earmarked expenses of the NKVD amounted to 3.0 billion rubles;²⁰ 7.0 billion were appropriated for 1940.²¹

The prices of tractors were raised greatly in 1944 and subsequent years, despite the general policy of unchanged prices of producers' goods (see *Soviet Prices of Producers' Goods*, chapter ix). Since tractors are to a large extent produced by the factories which produce tanks, the idea suggests itself that a certain compensation was provided for the severe cut in prices of tanks during the war.²² This would of course imply that "defense" expenditures are also found under the appropriations for agriculture. It

¹⁷ In addition to this, 9 billion rubles' worth of decentralized capital investments were planned. See Voznesenskii's report on the 1941 Plan to the XVIIIth All-Union Conference of the CPSU (B).

¹⁸ The total appropriation, i.e., not only for capital investments, on transportation and communications in the 1941 Plan was 6,756 million rubles. See Zverev, *op. cit.*, p. 104.

¹⁹ See K. N. Plotnikov, *Budget of the Socialist State* (Moscow, 1948), p. 148.

²⁰ Zverev, *op. cit.*, p. 15.

²¹ *Ibid.*, p. 76.

²² See below, pp. 51-55.

is possible that the expenditures for military hospitals, sanitariums, etc., were covered from general appropriations on these items.

Pensions and compensations to veterans fall under social-cultural appropriations in the Soviet budget. In 1948 the appropriation for social compensations amounted to 18.4 billion rubles,²³ and most of this must have been compensations to veterans.

Hence, in addition to expenditures *earmarked* in the budget for military purposes, the following expenditures serve the same purpose: (1) part of the expenditures on the MVD (NKVD); (2) at least such expenditures on durable goods of defense character as military airdromes, barracks, etc., which would be covered from the military budget in the United States; (3) expenses on military schools, financed from the appropriation for education; (4) possibly items in appropriations for agriculture, health, and so on; (5) development of atomic energy so far as this is not financed from the earmarked defense expenditures; and (6) veterans' help, in so far as this is to be considered a military expenditure.

Earmarked, preliminary.—In the years discussed here, the appropriations earmarked for military purposes in the budgets were as follows (billion rubles):

1927-28	0.7
1937	17.5
1940	56.7
1948	66.3

Any estimate of what is really meant by ruble expenditures specifically on the armed forces is largely a stab in the dark. The same is true of changes in those expenses. The three major components of the expenses on the armed forces are salaries, purchases of consumers' goods for the men in the armed forces, and other expenses consisting chiefly of armaments, transportation, and so on. Given the divergent courses of wages, prices of consumers' goods, and prices of producers' goods, the proportion of the first two items in the total earmarked military expenditures could not have been the same in the several years here considered.

²³ A. G. Zverev, "State Budget of the 4th Year of the Postwar Stalin Five-Year Plan Period," *Planned Economy* (Moscow), 1949, No. 2, p. 48.

Bergson's figure is used for the outlay on soldier's pay in 1937.²⁴ The same percentage of the total earmarked expenses is assigned for this item in 1940. As to 1948, 15 percent of the total earmarked expenditures is taken as the share of soldier's pay.

Bergson estimated the cost of upkeep of the men in the armed forces in 1937 at 2.5 billion rubles. Here we use 2.2 billion rubles for the same item because it is assumed that the prices paid by the armed forces were lower than the retail prices paid by the civilian population by more than the retail margin (see below, p. 51). The same percentage of total earmarked expenses as in 1937 was accepted for this item in the 1940 expenditures. For 1948, the cost of upkeep was estimated at 22.5 percent of the earmarked military budget.

Armaments, the principal component of "defense" expenditures, fall in the category of producers' goods in the USSR. Armaments are machinery, and among the price increases during the Plan era, those of machinery were among the smallest. In the same group as machinery, for purposes of recalculation to real 1926-27 prices, may be placed the outlays on other goods and services with only relatively small price rises during the Plan era, such as expenses on freight transportation by rail. Finally, a group of expenditures is considered (its share in total earmarked military expenses was arbitrarily set at 15 percent in 1937 and 1940, and 22.5 percent in 1948) with intermediate to large price rises during the Plan era.

The changes in salaries of the personnel in the armed forces are assumed to have been in line with the changes in all salaries and wages. Hence the outlay on this item was converted to real 1926-27 prices by use of the living-cost indexes of urban wage earners as computed below (see chapter iv).

The establishment of conversion factors for deflating the expenditures of the armed forces, other than pay, involves exceptional difficulties. The prices of munitions as such are discussed in a special section below. With reference to all acquisitions for the armed forces, it is impossible to estimate the savings accrued through the release from turnover tax of certain operations of the so-called budgetary organizations and specifically of the Ministries (Commissariats) of Defense and Navy. Furthermore, while

²⁴ Abram Bergson, unpublished Appendix (mimeographed), p. 8.

in general the armed forces pay turnover taxes, they probably acquire certain goods, especially clothes and shoes, at considerably lower prices than do civilians, namely, at prices comparable with those for occupational clothing. In arriving at conversion factors for the expenses on the upkeep of men in the armed forces, it must furthermore be recognized that in the base year, 1926-27, the armed forces did not need to purchase in the private markets where prices were higher. All the above factors considered, and in line with the findings on retail prices in chapter iv, the same conversion factors, 7.5 and 22, are used for deflation of the expenses on the upkeep of men in the armed forces in 1937 and 1948 as are used for deflating their salaries from current to 1926-27 prices. A coefficient of 9 is used for the same expenses of the year 1940.

The various expenses, for which 15, 15, and 22.5 percent of the total earmarked military expenditures are assigned for 1937, 1940, and 1948 respectively, are more or less an enigma, and so are the conversion factors here chosen (3.5 for 1937, 5.0 for 1940, and 6.0 for 1948; see Appendix Table III for details).²⁵

Prices of munitions.—So far as concerns the price of munitions, it is assumed here that armaments were moderately more expensive than civilian machinery until and including 1941, became considerably cheaper than the latter during World War II, and continued so through 1948. It is furthermore probable that armaments and munitions did not participate in the price boosts (of about 30-35 percent) on civilian machinery effective January 1, 1949, and may not have participated in the price slashes on civilian machinery effective January 1 and July 1, 1950.

The data of the 1941 Plan show that the munitions industries were expected to be more profitable in 1941 than the industries producing civilian machinery: the Commissariats of Defense Industries, 18.6 percent; Commissariat of Heavy Machinery, 6.6 percent; Commissariat of Intermediate Machinery, 15.2 percent; Commissariat of General Machinery, 17.8 percent; Commissariat of Electric Machinery, 8.8 percent.²⁶ The fact that the

²⁵ The jump in the percentages assigned to wages, upkeep, and the residual group of military expenditures in 1948, which may appear strange at first glance, is explained by the fact that the prices of the first three groups and of armaments moved in opposite directions after 1940.

²⁶ 1941 Plan, Supplement, pp. 11, 566-67.

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same Plan ordered a greater cut in production costs for the munitions industries than for civilian industry (11.1 percent for the Commissariats of Defense Industries as against 5.3, 8.0, 7.0, and 6.0 for the four commissariats of machinery in the order given above) may indicate that in 1940 the greater profitability of the munitions industries had been even more pronounced than it was according to the 1941 Plan.

The situation with reference to production costs and profits of the munitions industries reveals the familiar Soviet picture of goods only recently introduced in production. It seems specifically to indicate that the output of munitions consisted to a larger extent of newly introduced items than was true of the output of civilian machinery (this fact is also known from other sources). All this points to the probability that in 1940 the current prices of munitions were moderately higher than the current prices of similar civilian goods—for example, that a tank cost somewhat more than a comparable tractor. Moreover, there is evidence, though somewhat insecure, that armaments were overvalued more than civilian machinery, also in “unchangeable 1926–27 prices.”

Official assertions leave no doubt of a sharp cut in the prices of armaments, munitions, and many other military goods during the war, mainly in 1942 and 1943. It seems certain that after this cut all these goods became substantially cheaper than comparable civilian goods. Voznesenskii, the president of the Gosplan, said that the prices of war industry declined 28 percent from prewar to 1942.²⁷ Turetskii gave the same percentage for the decline of the index of wholesale prices of “military output” since prewar, but related it to 1943 rather than 1942.²⁸ The most important types of combat weapons declined in price by as much as one-half to two-thirds, according to the same author.²⁹ Zverev, the Finance Minister, speaking of finances during the war, said that the prices of armaments, munitions, and equipment delivered by industry to the front were reduced to less than half.³⁰ Plotnikov specified that this occurred in the war years through 1944.³¹ Belov repeated

²⁷ N. A. Voznesenskii, *War Economy of the USSR during the Patriotic War* (Moscow, 1948), p. 27.

²⁸ Turetskii, *Intra-Industrial Accumulations in the USSR*, p. 134.

²⁹ *Idem.*

³⁰ A. G. Zverev, “Soviet Finances and Socialist Construction in the USSR,” *Finances of the USSR for XXX Years, 1917–47* (Moscow, 1947), p. 70.

³¹ Plotnikov, *op. cit.*, p. 252.

Turetskii's statement that during the war the prices of the most important kinds of combat weapons were reduced by one-half to two-thirds, and added that only in 1943 the prices on military output were cut by a total of 35 billion rubles.³²

The cuts in prices were not limited to finished armaments and munitions, but applied also to materials and semifinished goods used in their production.³³

The drastic cut in prices of munitions was supposed to have been made possible by tremendous slashes in production costs. The following cost reductions were claimed for machinery, which during the war consisted almost exclusively of armaments: 24 percent in 1941, again 17 percent in 1942, and again 9 percent in 1943.³⁴ If it were permissible to cumulate those percentages, the total decline would have amounted to not less than 43 percent.

Specifically with reference to munitions, Turetskii said that "the savings on production costs attained during the Patriotic War which permitted the substantial price slashes on munitions were about equivalent to the cost of conducting the war during 150-160 days."³⁵ He also said that the savings on production costs of industry, consisting mainly of munitions, exceeded 50 billion rubles during the war years.³⁶ In the third war year a cannon shell cost less than one-third of what it cost at the beginning of the war.³⁷

All this is of course absurd. Wages and some other costs went up sharply. The method of computing production costs employed in the USSR (they are computed under the assumption of *ceteris paribus* and only for the so-called comparable output) has obviously much to do with the claimed cut in costs. Whether it can explain all of it one is not able to say. Actually, the radical price reductions of armaments were probably accompanied by a rise

³² P. Belov, "Economic Victory of the USSR in the Great Patriotic War," *Questions of Economics* (Moscow), 1950, No. 5, p. 13. The substantial price reduction of armaments during the war was also emphasized by A. Kursky, *The Planning of the National Economy of the U.S.S.R.* [in English] (Moscow, 1949), p. 187.

³³ This occurred in 1942 and 1943, according to Turetskii (*op. cit.*, pp. 106-07): "In many cases one-third to one-half of the total reduction in production costs of a certain article is brought about by the reduction in prices of the purchased materials and other means of production."

³⁴ Voznesenskii, *War Economy of the USSR during the Patriotic War*, p. 134.

³⁵ Turetskii, *op. cit.*, p. 117.

³⁶ *Ibid.*, pp. 100, 134.

³⁷ *Ibid.*, p. 101. The statement as made may have pertained to the prices paid by the armed forces. But it is found in the discussion of production costs and is therefore to be interpreted as pertaining to these.

in costs, and this implies that the munitions industries, which were profitable before the war, joined the ranks of the heavily subsidized industries when the price slashes began. The magnitude of the subsidies received by the munitions industries during the war and postwar years is irrelevant to the present analysis.³⁸ But the impossibility of determining exactly the level of prices of these industries or their relation to the prices of comparable machinery, which are known, is of course very relevant.

There may have been some more recent cuts in the prices of munitions, about which no one was permitted to talk. In any case, there is reasonable certainty that at least until the end of 1948 the prices of munitions were not raised or, if some of them were raised, the increase was but small. With small exceptions, the prices of industrial raw materials and machinery remained unchanged all through these years. There is, therefore, no reason to assume that armaments would have been among the few exceptions involving price rises. There is, moreover, some specific evidence on this matter.

The military budget for 1947 was reduced by 5.6 billion rubles. Zverev, the Finance Minister, pointed out in his report that this happened in spite of the increase in food prices and in pay of the men in the armed forces which had occurred at the end of 1946. In comparable prices, he said, the decline would have been equivalent to 24 percent,³⁹ i.e., to 17.4 billion rubles. In a similar way, the 1948 military budget was reduced by 0.3 billion rubles but in comparable prices would have declined by 2.5 billion rubles, according to Zverev.⁴⁰ While this time he did not mention the items which have become more expensive, these may well have been consumers' goods other than food, the latter indeed having become moderately cheaper at the end of 1947. Moreover, the whole difference between the actual appropriation and that at comparable prices was small—2.2 billion rubles or 3.3 percent of the total appropriation for the armed forces.

The relatively small increase in the budgetary allocations for

³⁸ It is very important for those who make their estimates in current unknown prices and later have to make adjustments for the state subsidies. They have to consider the direct subsidies as well as the indirect ones—to goods used in production of armaments, to transportation facilities used for both armaments proper and the goods used in their production, etc. There is indeed a spiral effect in operation here, which makes it extremely difficult to estimate the total effect of subsidies.

³⁹ Moscow papers of Feb. 7, 1947.

⁴⁰ The 1948 budget report in Moscow papers of Feb. 1, 1948.

the armed forces, of only 19.3 percent in 1949, in the face of the large to very large increases in the prices of all goods which are neither armaments nor consumers' goods, and of transportation charges, makes it probable that the price boost of producers' goods up to 300 percent and more, and even that of civilian machinery by about 30–35 percent, effective January 1, 1949, did not touch armaments or involved them only to a very small extent.

The evidence on the price developments in civilian producers' goods, freight rates, and specifically on the changes in the prices of munitions leads to acceptance of the following factors for conversion (from *current prices* to *real 1926–27 prices*) of the earmarked expenses on the armed forces other than those on salaries and upkeep of the personnel, and miscellanea: 2.5 in 1937, 3.5 in 1940, and 2.75 in 1948.⁴¹

Total earmarked expenses.—The conversion of the expenses on the armed forces, specifically so earmarked, to real 1926–27 prices in 1937, 1940, and 1948, as here undertaken, is shown in Appendix Table II. In summary form, the *earmarked* military expenses were as follows, with the 1927–28 figure added and with Wyler's computation, in dollars at American 1940 prices, also given for comparison:

Year	Billion rubles at current prices	Billion rubles at real 1926–27 prices	Billion dollars at 1940 American prices (Wyler)
1927–28	0.7	0.7	0.8
1937	17.5	5.7	4.3
1940	56.7	13.2	11.3
1948	66.3	13.3	...

The greater increase from 1928 to 1937 in the estimate made here as compared with Wyler's is surely due to the fact that the number of men in the armed forces, to whose pay and upkeep Wyler accords a greater weight than does the writer, increased relatively less in that period than total military expenditures. In 1937–40 the reverse was true, and Wyler's computation therefore shows the greater percentage rise.

The data in the tabulation imply practically the same earmarked defense expenditures in 1948 as in 1940. As with many other moderate differences, we cannot be certain of this one. The

⁴¹ The rounded form of these factors clearly stresses their arbitrary nature; 2.75 is actually not a figure with two decimals, but one halfway between 2.5 and 3.0.

difference between the two years may well have been several times the 0.1 billion rubles here computed; or the 1948 expenditures may have been even somewhat smaller than those of 1940. But the writer is reasonably certain that his analysis is more reliable than Bergson's, reflected in the latter's statement: "The current [probably 1947] expenditures [on the armed forces] in real terms are perhaps about as large as, if not larger than, those of 1939. . . ." ⁴² In 1939, the earmarked military expenditures were 31 percent smaller than in 1940 (in prices of the respective years) and probably were *substantially* below those of 1947 and 1948 in comparable terms.

While the relation between the 1940 and 1948 military expenditures cannot be established with certainty, it seems reasonable to assume that the share of military expenditures in net national product was not smaller in 1948 than 1940, because the 1948 net national product may be assumed with certainty to have been moderately below that of 1940. There is no occasion to disregard the official evidence on the severe cut in prices of war materials, in which there seems to be no good reason not to believe.

Total expenditures.—Any estimate of the total military expenditures of the USSR is necessarily a particularly wild stab in the dark. But if it be assumed that a large part of the expenditures on atomic research falls outside the earmarked military budget, and if furthermore all construction of a military nature (even that which would be under private investment in the United States) be included in military expenditures, the total of such expenditures may have amounted in 1948 to 20 billion rubles at real 1926–27 prices.

⁴² Abram Bergson, "Russian Defense Expense Expenditures," *Foreign Affairs*, January 1948, XXVI, 375.

With some reservations, Bergson used the increase in wages since 1939 as a yardstick for increase in prices of munitions from 1939 to 1947. This procedure is unquestionably incorrect. It is noteworthy that in discussing capital investments, the same author used the prewar and postwar costs without any adjustments (Abram Bergson *et al.*, "Postwar Economic Reconstruction and Development in the U.S.S.R.," *Annals of the American Academy of Political and Social Science*, May 1949, CCLXIII, 68; his reservations, lost in a footnote, are meaningless). The reverse procedure would have been much more justified. In his study (*ibid.*), Bergson apparently revised his statement with reference to the relation between the 1947 and 1939 military expenditures, but he continued to believe that "the price level of military goods may now [Bergson's "now" probably pertains here to 1948] be appreciably higher than before the war . . ." (*ibid.*, p. 67). A footnote is hardly a sufficiently conspicuous place to withdraw a conclusion which was the essence of a special article on so vitally important a subject as Soviet defense expenditures. Part of the official evidence on the cuts in munition prices quoted above was available before the publication of the quoted issue of the *Annals*. They certainly warranted attention.

CHAPTER IV

ALLOCATION OF NATIONAL INCOME: II

There is a famous old Russian joke which fits present conditions in the Soviet Union: "If it is written on the cage, 'this is a lion,' but you see an ass in the cage, do not trust your eyes." On the iron curtain is written, "greatly increased consumption levels," "happy, well-to-do life has come to the poverty-stricken Russian worker and peasant," and so on. Through even the tiniest holes in the curtain are clearly discernible the greatly reduced housing space in cities, the diminished supplies of formerly available animal products, the considerably lowered supplies of textiles and many other vital things per capita of both the rural and the urban population. But many students of the Soviet economy stare at the inscription on the cage and refuse to trust their eyes.

It is certainly not too difficult to estimate the value in current prices of what the Russian population consumed in any peacetime year. The computation cannot be made exactly, it is true, but with sufficient care reasonable results can be obtained. As soon as price and cost indexes are applied to such data, one of the principal mainstays of Soviet propaganda disappears. But the price and cost indexes are essential. Without them the data in current prices are almost useless. The reduced consumption levels can be easily ascertained also by analysis of consumption in physical terms.

LIVING-COST INDEXES

Urban wage earners.—The price indexes of consumers' goods, part of the living-cost indexes here computed, were used above in the analysis of retail turnover. All computations are preliminary (see the table on p. 58). The reader will find in the Appendix Note a short description of the procedure employed. A few explanations of the indexes will suffice at this point.

The indexes apply in the first place to living costs of urban workers. A rather complicated procedure with reference to prices

LIVING-COST INDEXES OF WORKERS' FAMILIES, SPECIFIED YEARS
(1926-27 = 100)

Item	1928	1937	1940	1948
A. Moscow prices ^a				
Commodities:				
Food	103.1	1,045	1,361	3,151
Clothes and shoes ..	92.3	808	1,279	2,348
Original total ^b	99.3	887	1,199	2,589
Adjusted total ^b	99.3	816	1,199	2,382
Services: total	115.0	320	452	689
Grand total:				
Original total	101.4	810	1,098	2,342
Adjusted total	101.4	749	1,098	2,162
B. USSR prices ^a				
Commodities:				
Food	103.1	1,105	1,565	3,334
Clothes and shoes ..	92.3	743	1,279	2,160
Total ^b	99.3	902	1,324	2,640
Services: total	115.0	326	461	702
Grand total	101.4	824	1,208	2,378

^a This part of the table represents a summary of Appendix Table III. The indexes are based on weights of the Central Statistical Board, Bureau of Labor, and of the Gosplan for all of the USSR and, except for the indexes designated "adjusted," on the prices in Moscow state and co-operative trade. The "adjusted" indexes are supposed to be at Moscow prices for all trade, i.e., including private trade, in 1926-27 and 1928.

^b All commodities.

^c This part of the table deals with the items in the upper part of the table designated "adjusted." The price indexes of food and clothes and shoes for 1937 and 1948 were adjusted for this purpose by subtracting the same 8 percent that was established for all commodities. The figures of the upper part of the table, adjusted for the share of private trade in 1926-27 and 1928, are then adjusted for the difference in the price trend between Moscow and the whole of the USSR. For this purpose the indexes of food prices were raised 15 percent, the indexes of the cost of services 2 percent, and the total living-cost indexes 10 percent (see pp. 104-05 for comments).

was followed. The basic computation was in Moscow prices in state and co-operative trade. The indexes for 1937 and 1948 were then adjusted for the fact that in 1926-27 and 1928 part of the purchases were from private trade at higher prices; no such adjustment was made for 1940, however, because evidence exists that prices in kolkhoz markets were substantially higher than prices in state and co-operative stores. The final stage was to adjust the indexes for the almost complete elimination of the regional dif-

ferential during the Plan era (Moscow prices were substantially higher than the USSR average before the Plan era).

As weights, the latest ones released by the Central Statistical Office in co-operation with the Gosplan were used. These were based on the actual composition of expenditures in 1925-26. The analysis in the Appendix Note leads to the conclusion that the shifts in composition of expenditures from 1925-26 to 1928 were such that the rise in living-cost indexes in subsequent years would have been smaller, if they had been based on the expenditures in November 1928, the month of the 1928 survey, rather than upon expenditures in 1925-26. But the difference is small. The 1937 indexes, for example, would have been lower by less than 20 points, possibly only by 10 points, if based on composition of expenditures in 1928 rather than in 1925-26. It is, moreover, questionable whether the composition of expenditures in 1928 would have been a better yardstick than that of 1925-26, because the improvements in composition of the worker's budget between 1925-26 and 1928 were soon lost.

In view of the controversial nature of the topic, and since the results in any event reveal a highly unfavorable situation with reference to real wages, effort was made to keep the indexes at the lowest level possible. The treatment of potatoes and vegetables, necessitated by the absence of suitable material, was the only exception. But the moderately boosting effect of this item was amply offset by disregarding good wheat flour as well as the compulsory shifts in consumption from flour to bread, from meat to sausage, from cigarette tobacco to cigarettes, and so on. The rise of the indexes was furthermore minimized by basing the price index of shoes on the lowest quality of leather shoes, etc. (see Appendix Note).

From 1926-27, living costs of urban workers, as shown in the preceding table, rose 8.2-fold to 1937, 12-fold to 1940, and 23.8-fold to 1948. The rise was slightly smaller from 1928, namely, 8.1-fold to 1937, 11.9-fold to 1940, and 23.4-fold to 1948. To be on the safe side, and specifically to make the indexes applicable to all urban wage earners (see discussion of the living costs of employees on page 107), 750, 1,100, and 2,200 are uniformly used as the living-cost indexes in 1937, 1940, and 1948 respectively, for both 1926-27 and 1928 as the base.

Unfortunately the data are insufficient for extending the living-cost indexes of urban wage earners to a time after March 1, 1950, when the latest cut in prices of consumers' goods occurred. Food prices, weighted by the 1925-26 expenditures of urban workers, declined about 30 percent, the prices of clothing and shoes about 20 percent, and the prices of all goods by roughly 25 percent from 1948 to March 1, 1950. However, the costs of services rose, although at an unknown rate. If the increase in the cost of services was equivalent to 50 percent,¹ the total living-cost index declined almost exactly 15 percent from 1948 to March 1, 1950.

Rural population.—In calculating the changes in living costs of urban wage earners, the effect of the enforced shift from purchasing flour to purchasing bread was disregarded. That shift involved a considerable enhancement of living costs, though primarily in small or not very large cities. In large cities, home baking of the daily bread was not widespread even before the Plan era. In them, the disadvantages from the greater price rises of flour than of bread, and of better flour than of poorer flour during the Plan era, consisted mainly in the necessity of abstaining from home preparation of the more fancy items like *pirogi*, *kulebya-ka*, and the like,² or in having to pay the disproportionately high prices for the white flour from which such fancy items are made.

In smaller cities, and especially in villages, the disadvantages from the prohibitive flour prices (relative to bread prices) during the Plan era were much greater. Before the Plan era, when a peasant was short of his own bread grain, he would buy the needed grain at semiwholesale prices, frequently in the peasants' market, or from another peasant in the same village, have the grain ground in a custom mill, and bake the flour at home. Soviet policies put an end to this. When a peasant is short of his own bread grain, he is almost always forced to cover his deficit by buying bread from the government. This frequently involves trudging miles to the railway station, the only place where government bread can be

¹ In Moscow, the electric-current price was raised from 41 kopeks to 60 kopeks per kilowatt-hour in 1949, the price of hot water from 13.30 to 54.05 rubles per unit. An upward revision of the housing rent was overdue. The need for it had become especially urgent in view of the great boost of construction costs effective January 1, 1949. While it is assumed that such a revision occurred, this may be wrong.

² Usually baked dough with filling, mostly meat, but also with many other ingredients in various forms.

purchased, and the time spent may considerably exceed the time necessary in making the bread at home.

The average farm price of rye was 4.46, 4.64, and 7.62 kopeks per kilogram in 1926-27, 1927-28, and 1928-29 respectively.³ With virtually no loss in weight in converting rye to whole-rye meal and with the high water content of common rye bread (perhaps 40 percent when the peasants bake it, over 50 percent when the state bakes it), common rye bread is unlikely to have cost the peasants much more per unit of weight than the average rye prices stated above, and may have cost less. The government, however, charged 85 kopeks for its waterlogged bread in 1937, 85-100 kopeks in 1940, and 280-320 kopeks in 1948. Hence, common rye bread purchased from government stores in 1937 may well have cost the peasant at least 15 times as much as the same bread, made from purchased rye, cost him in 1926-27. As compared with 1928, the increase in cost is unlikely to have been less than 12-fold.

While the increase in the amount of bread and other baked products purchased by the peasants during the Plan era cannot be determined exactly, millions of tons were undoubtedly involved. This is implied in the fact that the output of bread and other baked products by state and co-operative bakeries amounted to 16.6 million tons in 1938, a doubling since 1933,⁴ and at least a quadrupling since 1928. The urban population of 56 million in January 1939 is unlikely to have purchased in 1938 as much as 200 kilograms per capita, or more than a total of 10 million tons.

The fundamental changes in the type of purchasing done by the rural population during the Plan era, as caused by the government policies, are clearly reflected in official statistics. The purchases of farm products by the rural population in 1927-28⁵ were estimated as totaling 2,932 million rubles, of which 2,419 million rubles' worth was acquired from peasants and in peasant markets,⁶ and 513 million rubles' worth from regular trade channels. Thus little more than one-sixth of the farm products was obtained from regular trade. The purchases of farm products from peasants and

³ *Control Figures of the National Economy USSR for 1929-30*, p. 581.

⁴ *Socialist Construction USSR, 1933-38*, p. 77.

⁵ *1st Plan*, Vol. II, Part 2, pp. 74-75.

⁶ The so-called "intra-peasant turnover."

in peasant markets amounted to one-third of *all* purchases of the farm population, according to the source cited. In a few years, these purchases became almost negligible. Margolin, an official analyst, estimated the purchases of farm products by the rural population in kolkhoz markets at only 5 percent of their total purchases.⁷ While Margolin described his very detailed tables as arbitrary, they are broadly applicable to 1935.

Although it is possible that the prices of goods which could have been purchased by the peasants for their money incomes increased more, possibly considerably more, than the living-cost index of urban workers, this index, with the discount allowed for wage earners, is nevertheless used here for deflating current prices to real 1926-27 prices the incomes of the total population (aside from the income of the farm population in kind and the cost of upkeep of the men in the armed forces, which are considered separately). This procedure will provide a safeguard against underestimation, if any, of the money incomes themselves and any other errors.

PRIVATE CONSUMPTION, ESTIMATED

In current prices.—Private consumption in 1927-28 is assumed to have been equivalent to 21 billion rubles at 1926-27 prices.⁸

The publication of Bergson's study on the Soviet national income and product in 1937 makes superfluous the present writer's similar computation of the income of the population in 1937 in current prices. Bergson's estimate of the incomes of

⁷ N. S. Margolin, *Balance of Money Incomes and Expenditures of the Population* (Moscow, 1940), p. 105.

⁸ There is no absolute certainty with reference to this figure; *1st Plan* (Vol. II, Part 2, p. 38) gave 20 billion rubles as the "nongainful consumption." To make the figure comparable with figures for subsequent years, government expenditures other than on investment and wages would have to be subtracted. Another needed adjustment, in the opposite direction, would be to allow for the fact that the figure is given in 1927-28 prices, which were slightly lower than those of 1926-27.

The national-income estimates of the *1st Plan* were partly revised by the Gosplan soon thereafter. In its *Control Figures of the National Economy USSR for 1929-30* (p. 467), the Gosplan first estimated the 1927-28 national income, Soviet concept, at 25.4 billion rubles (1926-27 prices), or 1.0 billion rubles higher than the corresponding estimate in the *1st Plan*, and then (pp. 470-71) gave, under the heading "Distribution of National Income," a computation which reminds one of the American concept of national income. Here the total is 27.7 billion rubles (1927-28 prices). If this figure were used as a base, 1928 private consumption at 1926-27 prices would work out at possibly 22 billion rubles.

households includes soldiers' pay and subsistence, and the imputed net rent of owner-occupied houses, and, with the method used, it may include the cost of maintaining the inmates of concentration camps. According to his estimates, current earnings of households were equivalent to 181.3 billion rubles in 1937, of which 30 billion rubles represented net farm income in kind, 2.5 billion rubles the estimated cost of military subsistence, and 4.3 billion rubles a statistical discrepancy.⁹ The farm income in kind will be dealt with separately; the cost of the military subsistence already estimated will also be added only at a later stage; hence the balance, including the statistical discrepancy, is 149 billion rubles.

The wage fund of 1940 was officially given at 162 billion rubles.¹⁰ This figure includes the pay of the men in the armed forces (probably also the cost of their upkeep), and possibly too the cost of maintaining the inmates of the concentration camps. All other items which will make the total comparable with 149 billion rubles in 1937 may be estimated at 68 billion rubles. Thus total private consumption in 1940, except for the farm income in kind and the cost of the upkeep of military forces, was equivalent to 230 billion rubles. A similar computation, but based on more uncertain evidence, leads to a figure of around 400 billion rubles in 1948.

In real 1926-27 prices.—The computed values in current prices for the total private income other than the income of the peasants in kind and the cost of upkeep of the men in the armed forces, deflated by the living-cost indexes as computed above, yield the following values at real 1926-27 prices:

Year	Billion rubles at current prices	Conver- sion factor	Billion rubles at real 1926-27 prices
1937	149	7.5	19.9
1940	230	11	20.9
1948	400	22	18.2

⁹ Bergson, "Soviet National Income and Product in 1937. Part I," *Quarterly Journal of Economics*, May 1950, LXIX, 214.

¹⁰ *Dictionary-Handbook on Social-Economic Statistics* (2d ed., 1948), p. 399, says vaguely that the wage fund is "the part of national income which goes into individual distribution of working people." Transfer items, which amounted to 9.2 billion rubles according to Bergson, are disregarded.

Next, the income of the rural population in kind needs to be determined. Only a rough appraisal is possible, but the method here used has at least the advantage that real quantities are visualized and the determination is in terms of known prices and, moreover, for the most part directly in 1926-27 prices. The gross receipts of kolkhozniki and individual peasants in kind were estimated by this writer for the 1937-38 and 1938-39 crop years at 1926-27 prices as follows (in million rubles):

Item	1937-38	1938-39
Received from kolkhozy in kind	2,870	1,684
Feeding by the kolkhozy	250	250
Theft from the kolkhozy	250	250
Own production*	3,700	3,200
Total	7,070	5,384
Less: Used for feed	1,200	900
Available for sale and own consumption	5,870	4,484

Data from Jasny, *The Socialized Agriculture of the USSR*, pp. 670-700.

* Less obligatory deliveries.

The turnover of kolhoz markets was officially estimated at 17.8 billion and 24.4 billion rubles (current prices) in 1937 and 1938 respectively. Since the turnover in these markets included only small quantities of the products which showed the greatest price rises from 1928 to 1937 and 1938, the turnover in 1937-38 may be estimated in 1926-27 prices at somewhat over 3 billion rubles. According to Kagarlitskii, 83.3 percent of the sales in kolkhoz markets were made by kolkhozniki and individual peasants.¹¹ But in making this statement, Kagarlitskii used an expression which makes one believe that he has in mind only products actually delivered to market places. The share of the kolkhozniki and individual peasants in total trade of kolkhoz markets may have been even larger than 83 percent. On all these considerations, the sales of both kolkhozniki and individual peasants in kolkhoz markets and their consumption in kind in 1937 are assumed to have been about equal, close to 3 billion rubles in real 1926-27 prices.¹²

¹¹ P. Kagarlitskii, "On Kolkhoz Market Trade," *Problems of Economics*, 1940, No. 3, p. 95.

¹² According to the *Dictionary-Handbook on Social-Economic Statistics* (2d ed., 1948), p. 93, the nonmarketed farm products of the kolkhozy, kolkhozniki, and individual peasants

To estimate the income of the farm population in kind in 1940 is particularly difficult because no data seem available on the status in the new territories, and the situation there certainly was different from that in the pre-1939 territory. There is no doubt that in the pre-1939 territory the income of the peasants in kind was substantially smaller in 1940 than in 1937, which was far the best agricultural year of the Plan era. Three billion rubles at real 1926-27 prices would seem a reasonable estimate of the income of the 1940 farm population of the USSR in the new boundaries.

The year 1948 was one of scarcity for Soviet peasants. The distributions of the kolkhozy to their members, the kolkhozniki, were very small. The kolkhozniki's own output was pressed down by government action to considerably below prewar. Yet the great fall of prices in kolkhoz markets probably necessitated the sale by the kolkhozniki of relatively large amounts of their products. One can be reasonably certain that in the pre-1939 territory the incomes of kolkhozniki and individual peasants in kind were smaller, or in any case no larger, than in 1938-39, a poor year. While the government's grip on peasants' supplies in most new territories was not yet as strong as in the old, the peasants of those areas also certainly felt the pinch. The income of all kolkhozniki and individual peasants in kind in 1948 is here estimated at 2.3 billion rubles (real 1926-27 prices).

are to be evaluated at the average prices realized for all marketed quantities (including obligatory deliveries). The weighted average prices realized by the kolkhozy and peasants in 1938 were about 4.5-fold those of 1926-27 (estimated in *The Soviet Price System*, chapter iii). Hence the income of the farm population in kind in 1937 was less than 15 billion rubles at current prices. This figure compares with Bergson's estimate of 30 billion rubles ("Soviet National Income and Product in 1937. Part I," p. 214). It will be shown in *The Soviet Price System*, chapter vi, that the procedure used by Bergson in determining the income of the peasants in kind could have yielded a correct result only by happy accident.

It is indispensable in any analysis, and especially so in analysis of the Soviet economy, not merely to accept evidence or one's own results of computations pertaining to isolated sectors or spheres, but to pause and think whether they make sense, whether they are possible, *whether they fit in with other evidence or other findings*. For example: The rural population with a considerable income in kind comprises substantially less than half of the total Soviet population. In addition to the income in kind, this population purchased considerable amounts of farm products, clothing, shoes, and other necessities in 1937. The consumption levels of the rural population, and specifically its diet, are substantially worse than those of the urban population in the USSR. Finally, income in kind is evaluated at considerably lower prices in national-income estimates than the same goods would cost if purchased. If one takes all this into consideration, one cannot fail to see that income of the rural population in kind could not possibly have amounted to as much as one-sixth of the total private consumption in 1973, the proportion implied in Bergson's estimates.

Hence total private consumption in the years here considered was (in billion rubles at real 1926-27 prices):

Year	Income of farm population in kind	Upkeep of men in the armed forces	Others	Total
1928 ....	...	...	...	21.0
1937	2.9	0.5	19.9	23.3
1940	3.0	0.7	20.9	24.6
1948	2.3	0.7	18.2	21.2

Per capita figures for the total work out as follows:

Year	Population (millions)	Consumption (rubles)
1928	151	139
1937	165	141
1940	195	126
1948	195	109

Needed adjustments.—Those who seek for successes in the USSR find it convenient to stop in their analysis at consumption per capita of the total population. As was stated in the introduction, national income as commonly computed is a poor gauge of economic developments under such rapidly changing conditions as those of the Plan era. The same is specifically true of that portion of the national income which goes into private consumption. To stop with calculations per capita of the total population is simply not permissible, as in the case of retail turnover. The situation here is the same as with the gross output of consumers' goods. The fact that this output may have more than doubled from 1928 to 1937 and may have been almost 3-fold the 1928 level in 1940 in United States prices (see table on p. 17) easily leads to wrong conclusions against which one must be strictly on guard.

First of all, one must remember that at the beginning of the Plan era per capita incomes and expenditures of the urban population were a multiple of the per capita incomes and expenditures of the rural population. According to official estimates for 1927-28, the income of the whole rural population was 13,823 million rubles, and that of the urban population, 11,551 million rubles.¹³ The total population was estimated at 151.3 million: the rural population at 123.4 million and the urban population

¹³ *Control Figures of the National Economy USSR for 1929-30*, pp. 470-71.

at 27.9 million.¹⁴ The data imply a per capita income of the urban 3.7 times that of the rural population. While the figure is certainly crude, it suggests the order of magnitude.

Part of the difference between the per capita incomes of the urban and rural populations was due to the fact that the urban population consumed per capita much more animal products, textile goods, and even shoes than did the rural population, thus representing a higher consumption level in physical terms. The higher per capita urban expenditures, furthermore, reflected the large additional transportation costs and trade margins in transferring farm products from producers to consumers. A final factor was that the urban population commonly purchased goods at a more advanced stage of processing than the rural population was in the habit of buying.

The value of processing done in the homes of consumers is not included in the value of industrial output as this is estimated statistically; neither is it included in the estimates of national income. Hence the shift from home to factory industry inevitably involves a statistical enhancement of industrial output and of national income, and specifically of that portion of it which goes into private consumption. Thus in some degree a recorded increase in the value of industrial output of consumers' goods and of national income means nothing with respect to increase of national consumption levels.¹⁵

Again assuming (see pp. 30-31) a 70 percent increase in the urban population from mid-1928 to mid-1937, with the rural population declining by 8 percent, and a per capita income of the urban population of 3.7 times that of the rural, an increase of 26 percent in per capita income of the *whole* population was needed merely to maintain consumption at the 1927-28 level.

¹⁴ *Ibid.*, pp. 420-21.

¹⁵ The writer believes that, in analyzing the changes in consumption levels in the USSR in 1928-40, data on per capita retail turnover and incomes, to be used properly, must be separated into those of the urban and of the rural population. This view met with objections at a discussion at Harvard. The writer concedes that the procedure ignores the advantage of the higher consumption levels in urban areas for that part of the population which has actually moved from the rural to urban areas. But this population group amounted to but little more than 15 percent of the total population in the period specified. Consumption levels of the urban population certainly were not higher than those of the rural population by the full extent to which retail turnover and incomes per capita of this population exceeded those of the rural population. Only such equality would have justified the use of per capita data for the whole population. The gain of those who actually moved from rural areas nevertheless must be remembered.

But the per capita value of consumption was practically the same in both years (see p. 66), so that a substantial decline in consumption levels is indicated.

Furthermore, the required 26-percent increase applies under conditions of *ceteris paribus* except for the country-to-town movement of population; specifically, it implies consumption during the Plan era in the same stages of processing by each of the two big population groups as in 1927-28. But the situation has by no means remained the same in such respects during the Plan era. The transfer of processing from home to industry proceeded at a rapid rate—one might even say, occurred with a jump—far beyond the amount associated with the country-to-town movement. The same developments are involved here as have shown themselves before in our analysis, in appraising the changes in output of consumers' goods, retail turnover, and consumption in kind by the farm population.

Transfer of processing from homes to industry occurs automatically with progress of industry and—as was not the case in the USSR—with rise in incomes. In the USSR the drawing of women into gainful occupations in cities and villages on a large scale was an important additional factor in fostering such transfer. The effect of natural factors was, moreover, greatly strengthened and accelerated by deliberate government action. The government refused to sell bread grain, and demanded disproportionately high prices for flour, meat, tobacco, probably also cloth and yarn, relative to government-processed items from these materials in the form of bread, sausage, cigarettes, probably also clothing and hosiery. As already stated, commercial baking jumped from, at most, 4 million tons in 1928 to 16.6 million tons in 1938. Yet total bread consumption increased only about in proportion to the increase of total population, some 15 percent; so that the great rise in value of commercial-bread output gave no indication of rise in the level of per capita bread consumption.

The retail value of this huge amount of additional factory-produced bread certainly was very much in excess of 10 billion rubles. The expense would of course have been much smaller if the demand had been covered in the form of flour (urban popu-

lation) or grain (rural population)¹⁶ at prices in proper relation to those of bread.¹⁶

Consumption levels of urban wage earners.—So far as wage earners are concerned, any ideas that consumption levels may have been better in any year of the Plan than at its beginning disappear once living-cost indexes become available. Below are compared wage indexes, with 1928 taken as 100, of all state workers and employees, including those in rural areas, with the living-cost indexes (computed, it is true, only for urban wage earners, though this makes little difference):

Year	Wages	Living-cost indexes	Wage indexes as percentage of living-cost indexes
1937	432	750	57.6
1940	577	1,100	52.5
1948	974	2,200	44.3

In 1937, the decline in real wages was smaller in per-hour than per-year terms; if all wage earners are considered, the difference was probably considerably less than 10 percent. The difference between the increase in per-year and per-hour pay from 1928 to 1940, if any, was negligible. The per-hour pay may have declined from 1928 to 1948 somewhat more than the per-year pay. Official statistics on hours worked per year seem not to have been made available for many years.

There are a few factors which were not considered, or were considered inadequately, in those indexes. One of them makes the situation somewhat less disastrous; two operate in the opposite direction.

The writer has no evidence on the prices charged in canteens of the various state enterprises and organizations. So far as these purchase food, they seem to be burdened with the same high turn-

¹⁶ Since the transfer of processing from homes to gainful enterprises is a natural process, there seems to be an inclination to look with certain approval at the policies of the Soviet government toward making the whole population dependent on the state for all needed goods in the most advanced form of processing. However, the transfer is best left to take its natural course, determined by prices based on production costs. Forced on the population by crude price discrimination, it implies even lower consumption levels than those which would have prevailed in any event. Moreover, part of home processing is pleasure, not work. A housewife wants to be able to serve something hot made from white flour. An old woman enjoys knitting a pair of mittens for her grandchild. Furthermore, Russian people resent having to eat sausage when they want meat to put in their *borshch*.

over taxes as everyone else. If the enterprises produce products for the canteens on their farms, they are subject to obligatory deliveries. These deliveries are, however, much lighter than the turnover taxes, and the enterprises and organizations certainly make every effort, even not fully legal, to reduce the prices of the meals to their personnel as much as possible. There is reason, therefore, to assume that the price of the meal provided by the canteens is on the average substantially lower than that which would be in line with the indexes of food prices.

A hard and significant fact with reference to consumption levels in the cities is that housing space per capita was reduced from the very small amount of 66 square feet to 45 square feet per capita from 1928 to 1937,¹⁷ and continued to decline later. In view of the very low house rents in the USSR, this great deterioration did not release much purchasing power for other expenses. The second adverse factor was the fact that purchases of state bonds had become compulsory and, at least thus far, represented an almost complete loss. This item is not considered in our living-cost indexes.

The effect of the two unfavorable factors at least offset the advantage of having the meal at the factory canteen at a relatively low price, so that the disastrous picture revealed in the foregoing tabulation remains fully in force. While the writer did not look forward to anything favorable, he was stunned by the results.

In somewhat greater detail the development of real wages was as follows: From 1923-24, when real wages had already, to a certain extent, recovered from the disaster of the civil war, a further rise of 52.0 percent by 1926-27 and of 65.7 percent by 1927-28 was encountered.¹⁸ Soon afterward, a precipitate renewed decline started. I am unable to say when the bottom was reached.¹⁹ By 1937 there had already been a big improvement.

¹⁷ See Prokopovicz, *Russlands Volkswirtschaft unter den Sowjets*, p. 309.

¹⁸ *Statistical Handbook USSR*, 1928, p. 547.

¹⁹ For 1930-35, official data on the expenditures of workers in large-scale industry are available: USSR Gosplan, Central Office of National-Economic Accounting, *Labor in the USSR* (Moscow, 1936), pp. 342-43. The data are based on surveys of budgets of workers in large-scale industry, similar to those of the pre-Plan era, but they represent merely a parody of the early surveys. The released data state the expenditures in rubles, but fail to provide any evidence on the quantities involved. Even the few figures stated in this peculiar form cannot, however, prevent a certain insight into the real situation. The diet is known to have deteriorated greatly in the early 'thirties. Nevertheless, according to the data cited, the workers had to spend on food 67.2 percent of their income in 1935 as against 60.8 percent in 1930 and 45.1 percent in November 1928 (the latter figure is from N. Filippova, "Dynamics of the Budget

Yet in that year, the wage index based on 1926-27 was 487, while the living-cost index similarly computed was about 750. The peak of the Plan era with reference to real wages was probably reached in the first half of 1939, when the wage index stood at about 600 (1926-27 = 100) or 550 (1928 = 100) with the living-cost index not substantially higher than the 750 of 1937. The decline in real wages in 1940 appears considerably greater if related to the status in the first half of 1939 rather than to the status of 1937, especially since the consumption levels of the new territories were substantially higher than those of the pre-1939 territory. The great deterioration of real wages and consumption levels during the war is a matter of record. The war status in this respect continued through 1947. In 1948 the situation still was considerably worse than in 1940—a bad year also.²⁰ It became substantially better after March 1, 1950, but only relatively. Real wages may have become slightly higher than in 1940, a year which was virtually a war year so far as consumption levels are concerned. The consumption levels after March 1, 1950, were considerably worse than in the first half of 1939, even if computed on an annual basis, disregarding the substantial increase in the number of hours worked.

The Plan era was characterized by an almost continuous de-
of Workers' Families in 1928 (November 1927–November 1928),” *Statistical Courier*, Moscow, December 1929, p. 48). Correspondingly the outlay on clothing and shoes declined from 20.2 percent of total income in 1928 to 13.6 percent in 1935.

²⁰ One of the best testimonials of the further great deterioration of Soviet “statistics” in postwar years is the announcement of the Central Statistical Office (Moscow papers, Jan. 18, 1950) that “in 1949 the incomes of workers and employees, in comparable prices, computed per working person, exceeded those in 1948 by 12 percent and were in that year 24 percent higher than in 1940.” The 1949 incomes of peasants, similarly computed, were supposed to have been higher by 14 and 30 percent respectively. This implies that in 1948 incomes of wage earners exceeded those in 1940 by 10.7 percent, while the excess was equivalent to 14.0 percent for the peasants.

Into the same category of brazen lies falls another announcement of the Central Statistical Office (Moscow papers, Jan. 20, 1949) that real wages of workers and employees rose in 1948 more than 2-fold as compared with 1947. Since in 1948 real wages were only about half as high as in 1928, the announcement of the Central Statistical Office would imply that in 1947 real wages were less than 25 percent of those in 1928. But 1947 was better than 1946. Hitler's propaganda appears weak as compared with these pronouncements of the Central Statistical Office on Soviet consumption levels.

It is the policy of some of the defenders of Soviet statistics to use the evidence which seems to be usable and pass silently by such pronouncements as those on real wages. Those who have persisted that Soviet statistics are not falsified or manipulated—to uphold their position—will find it difficult to show that the mentioned and other more recent pronouncements of the Central Statistical Office on consumption levels could have been reached by methods other than manipulation and falsification. I, for one, can see as the only reason for the alleged greater improvement of the consumption levels of peasants as compared with those of wage earners from 1940 to 1948 and 1949 the fact that manipulation can be less easily detected in the claims for the peasants.

cline in the number of dependents per wage earner, because women were drawn into gainful employment and the birth rate fell. The increased employment of women was caused by the decline in real wages (enforced during the war by the gradation in rations), yet not the smallest hesitation was shown by the government in making the very decline in the number of dependents per wage earner into a component in the computation of *real wages*. The 2d Plan simply made an equation between real wages and "the total physical volume of per capita consumption of non-farm workers and employees."²¹ The Central Statistical Office in its announcements on the incomes in 1948 and 1949 relative to those of 1940, mentioned above (p. 71), went a step further. It emphasized that the incomes were *per working person*. In any language but Soviet Russian this would mean that real wages are involved. Yet the Office certainly considered as a source of income the fact that the working person on the average had fewer dependents to support in 1949 and 1948 than in 1940. While there is no reason to accept this official procedure in computing real wages, the fact that the number of dependents per worker declined is noteworthy. It helps to explain why real wages, as computed in the tabulation (p. 69), fell considerably more than per capita consumption computed by dividing total private consumption by total population but with an adjustment for the difference in consumption between urban and rural population (p. 67).

The exact decline in the number of dependents per wage earner is difficult to ascertain. The government obviously sought to exaggerate it. The surveys of 1930-35, mentioned above in note 19, showed the large decline of dependents per worker in the surveyed families of large-scale industry from 2.05 in 1930 to 1.59 in 1935,²² or, if the worker himself also is counted, from 3.05 to 2.59, or by 15.1 percent. Lorimer is apparently inclined not to accept any decline, but his analysis pertains to all labor, including that in agriculture.²³ The increase of the proportion of women among wage earners of the state from 27.2 percent in 1929 to 37 percent in 1940²⁴ and the probability of a smaller number of

²¹ 2d Plan, I, 340.

²² *Labor in the USSR*, pp. 342-43.

²³ Frank Lorimer, *The Population of the Soviet Union: History and Prospects* (Geneva, 1946), p. 225.

²⁴ *Ibid.*, p. 226.

children per worker's family in the later year make probable a certain, probably not inconsiderable, decline in the number of dependents per urban wage earner.²⁵ A further strong decline in the number of dependents per wage earner in postwar years is beyond doubt.

Thus while even in the best year of the Plan era, let us say in the first half of 1939, real wages were still substantially lower than in 1928, consumption levels computed per capita *of the wage earners and their families* brought them closer to the level of 1928. The full consumption level of 1928 was not reached even then.

Consumption levels of peasants.—The writer's analysis, presented elsewhere, has shown that per capita incomes of the rural population from agriculture fell by about 10 percent from 1928 to the average of 1937 and 1938, the best two-year average of the Plan era so far as peasants are concerned. The analysis was in terms of 1926-27 prices. A later and more relevant analysis takes into consideration the fact that the relationship of the weighted prices received for products delivered to the state, or sold by the kolkhozniki and individual peasants, to prices of goods they buy deteriorated considerably in 1928-37. This indicates a decline in the incomes of peasants of roughly 25 percent. Even this computation did not sufficiently take into consideration the disadvantages for the peasants arising from the fact that they had to purchase bread from the state—whereas before the Plan era they used to cover their deficit by purchasing the bread grain, having it ground, and baking their own bread—and other similar disadvantages.²⁶

The uncertainty as to the territory covered by the official figure on the 1940 turnover in kolkhoz markets precludes definite conclusions with reference to the incomes of peasants in that year. In the pre-1939 territory there certainly was a decline from the average status of 1937 and 1938. Even the 1940 consumption levels of the peasants in the postwar territory were not recovered by 1950.

Consumption in physical terms.—The findings on consump-

²⁵ A factor which would have operated in the opposite direction may have been that the proportion of urban workers who had their families in the country, where living is cheaper, has greatly declined from the precollectivization level.

²⁶ Supporting evidence would appear in the expenditures of the rural population specifically on industrial goods during and before the Plan era.

tion levels in money terms²⁷ are confirmed by analysis of consumption in physical terms. In his monograph on Soviet agriculture, the writer showed in detail the great deterioration of the diet in the 'thirties. Yet the diet absorbed nearly half of the worker's income in 1928, about two-thirds of it in 1935, and much more than one-half in 1938.²⁷ In the peasant's budget, with consumption in kind computed at retail prices, food may absorb over 75 percent of the expenditures, other than taxes.²⁸

Per capita meat consumption fell by about 40 percent during 1928-37 in urban areas, and by more than 50 percent in rural areas. The decline in the consumption of milk (including dairy products) amounted to about 40 and 30 percent respectively. The reduction was large also in eggs. Sugar was the only valuable food product²⁹ of which the consumption (very small) increased substantially. There was an increase in the consumption of potatoes and possibly in cheap sorts of vegetables. The consumption of grain products increased slightly, but quality deteriorated with the great increase in extraction rates.³⁰

Cloth (including clothes) is by far the most important non-food product purchased by the population, especially by the peasants. As with food, per capita consumption of cotton goods of the rural and urban population declined during the peacetime years of the Plan era. The quantity of cotton goods available for private consumption fell from 15.2 meters per capita in 1927-28³¹ to less than 10 meters in 1940.³² There is, it is true, a degree of uncertainty about these figures. The source for the 1927-28 evidence stated that the figure included the material used for processing in factories, but no such statement was made in the source of the 1940 figure, although it is reasonably certain that the basis of computation remained the same. A decline in per capita consumption of cotton goods is indicated, however, by other data. While

²⁷ Margolin's data imply for around 1935 about 52 percent of the worker's budget as the expenditures on food (see Margolin, *op. cit.*, p. 102). But his data were given partly as examples and he was not inclined to exaggerate the share of food, since a large share of this is a definite indication of poverty.

²⁸ Margolin (*op. cit.*, p. 102) estimated (as an example) the share of food in money expenditures of the peasants at 46 percent, but the food products obtained by the peasants from kolkhozy and their own enterprises and consumed by them, evaluated at retail prices, may have been worth twice as much as those purchased.

²⁹ Valuable from the point of the consumers. Physicians think otherwise.

³⁰ Jasny, *The Socialized Agriculture of the USSR*, pp. 84-96.

³¹ *1st Plan*, Vol. II, Part 2, p. 81.

³² According to Voznesenskii (*War Economy of the USSR during the Patriotic War*, p. 125), only 46 percent of the output was sold "on the broad market" in 1940.

the output of cotton goods increased from 2,900 million meters in 1927-28³³ to 4,030 million meters in 1940, on a per capita basis the increase was negligible. If the great quantities of textiles used for the armed forces and as work clothing in factories, transport, stores, etc., and for war stockpiling in 1940 are considered, there was a substantial decline in per capita utilization even of the *whole* population. The decline was even greater, if the urban population is separated from the rural.³⁴ The year 1937 was one of the most favorable plan years with reference to the supply of cotton goods available for the population. Yet per capita output was only 20.8 meters in that year as against 19.2 meters in 1927-28. With consideration given to the considerably increased proportion of the output withheld from the "broad market" and the great enlargement of the proportion of the urban population with its relatively much heavier consumption of cotton goods as compared with the rural population, the above figures imply a decline in the amounts available for the urban and the rural population of 25 percent or more from 1927-28 to 1937.

Food, clothing, and shoes about exhaust the things Russian consumers buy. Of these commodities, shoes made the only relatively favorable showing. The data on shoe output usually quoted officially are (in million pairs):

1927-28	29.6
1932	82.0
1937	164.0
1940	206.0
1950	213.0*

* Implied in official pronouncements.

The 1927-28 figure does not include, however, the equally large output of small-scale industry.³⁵ Another factor to be taken into

³³ The figure of 2,742 million meters in *1st Plan* (Vol. I, Part 1, p. 250) pertains to large-scale industry only. In 1926-27, the share of the small-scale industry in cotton-goods production was 17.4 percent according to the number of persons employed and 2.6 percent according to the value of output. See *Statistical Handbook USSR, 1928*, pp. 484-85.

³⁴ According to *1st Plan* (Vol. II, Part 2, pp. 80-81), the rural population utilized per capita 13.2 meters and the urban 23.1 meters in 1927-28. These amounts included those used for processing to clothes in factories.

³⁵ The figure of 29.6 million pairs for 1927-28 is reproduced by Baykov, who emphasizes his "long experience in studying Soviet statistical sources" (*Bulletins of Soviet Economic Development*, May 1949, I, 7-8). The discussion in such an accessible source as *1st Plan* (Vol. II, Part 1, pp. 221-24) clearly shows that the figure represents the output of large-scale industry only and that the small-scale output was about equally large. USSR Gosplan, *Control Figures of the National Economy USSR for 1928-29* (Moscow, 1929), pp. 494-95, gave the total output of leather shoes in 1927-28 at 58.5 million pairs.

account is the decline in the proportion of the total shoe output which was made available for private consumption in subsequent years. With this considered, the number of shoes available per person increased from 0.40 pair in 1927-28³⁶ to 0.83 pair in 1940.³⁷ Since per capita utilization of the rural and urban population in 1927-28 amounted to 0.26 and 0.95 pair respectively,³⁸ a separate consideration of each population group reduces the increase in shoe utilization from 1927-28 to 1940 from over 100 percent to about 70 percent. There was, furthermore, a great deterioration in the quality of shoes owing to the shortage of leather. In 1940, a large proportion of the shoes sold on the "broad market," although designated in Soviet sources as "leather shoes," consisted of shoes with cotton uppers and rubber soles.

The urban population appears unlikely to have expanded its shoe purchases more than in proportion to the deterioration in their quality. Hence, in villages, a sizable shift apparently occurred from homemade bast-fiber shoes to the factory-made article—a natural process speeded up by the greater contact with the city, greater proportion of citylike people in the countryside, and other factors. Income factors were not involved.

EXPENDITURES ON EDUCATION AND HEALTH

The Soviets long ago recognized that the disappointing status of real wages and incomes of the population in general was badly in need of crutches, and these were found—in addition to such devices as treating the decline in the number of dependents per wage earner as a factor raising real wages—in counting the mostly gratuitous educational and health services of the state as part of real wages and private income in general. Already in the 2d Plan, the expected increase in the so-called cultural-social expenditures, consisting primarily of those on education and health, was made into one of the sources of the rise of real wages, scheduled in the Plan at not less than around 100 percent.³⁹ *Labor in the USSR* gave such a computation of real wages in some detail (see below, pp. 77-78).

³⁶ *1st Plan*, Vol. II, Part 2, p. 81.

³⁷ See Voznesenskii's book (*op. cit.*, p. 126) for the percentage of output made available to the "broad market" in 1940.

³⁸ *1st Plan*, Vol. II, Part 2, p. 81.

³⁹ *2d Plan*, I, 340.

Since about 1934, the educational and health services seem always to have been included as a component of real wages and private incomes of the population in general. This is certain with reference to the claims of the Central Statistical Office cited above on page 71. Moreover, while the Central Statistical Office emphasized that the computation is in comparable prices, one should properly suspect the opposite with reference to the expenditures on education and health so long as this institution does not come out with at least a few words of explanation.

While the investment in hospitals, school buildings, and the like is not included in budgetary appropriations for educational and health services, these include appropriation for military schools, and all or part of the cost of communist propaganda; and they may include all or part of the cost of atomic research. The expenditures on education are mostly given in lump sums, which preclude the possibility of identifying the components. It may, of course, be questioned whether the population is willing to count such expenditures as those on communist propaganda as their private income or real wages, but they are not asked.

It will be shown below that the expenditures on education and health were increasing rapidly during the Plan era. But the Soviets are not satisfied with the large factual increase. The conversion of the stated expenditures to a per capita basis occurs in a very strange way. The official *Labor in the USSR*, which gave 76.37 rubles per person as the average monthly income of the surveyed families in 1935, contained the following particulars on "cultural-educational expenses" and on "expenses on hygiene and medical treatment" (in rubles per person per month):

Cultural-educational expenses: total	9.77
From individual budgets	1.21
From public funds	8.56
Expenses on hygiene and medical treatment: total	11.42
From individual budgets	0.84
From public funds	10.58

Data from *Labor in the USSR*, pp. 342-43.

The amount expended on both items from public funds was 19.14 rubles per person per month or 25.1 percent of the income of the respective persons. The above sum recalculated to a yearly

basis yields 230 rubles. The total budgetary expenditures on social-cultural needs (education, health, physical education, safeguarding of labor, and social security) amounted to 13.1 billion rubles in 1935,⁴⁰ or 81 rubles per capita of the *total* population. While safeguarding of labor and social security pertained only to wage earners, the expenditures on these items amounted to only little more than 1 percent of the above total. It will remain a secret of the Central Office of National-Economic Accounting, which published *Labor in the USSR*, how the difference between 230 and 81 rubles was made up.

Social-cultural expenditures rose 8.6-fold from 1935 to 1948, wages only 3.2-fold. Hence on the official count, the social-cultural expenditures should have amounted to about 70 percent of the wages in 1948. Some such fantastic computation must underlie the already-mentioned and equally fantastic claims that the income levels of the population in 1940 were exceeded by those of 1948.

The rise in total social-cultural expenditures, and specifically in those on education and health, of the Union, the republics, and the smaller political subdivisions during the Plan era was shown as follows (in million rubles):

Year	Total	Education and health
1928	1,500	1,400
1937	25,689	23,482
1940	40,903	31,444
1948	105,609	74,990

Data for 1937, 1940, and 1948 from usual sources. No comparable figures for 1928 seem to be available. Plotnikov, *Budget of the Socialist State* (Moscow, 1948), p. 175, gave the expenditures in 1928-29 as 1,551 million rubles (total) and 1,445 million rubles (education and health).

Most of this phenomenal rise was clearly inflation. An idea of the real rise in the expenditures involved may be obtained from the fact that the number of persons employed in education and health increased from 1,188,000 in 1928⁴¹ to 3,542,600 in 1937.⁴² The further rise in personnel was moderate, however. The 1941

⁴⁰ Plotnikov, *Budget of the Socialist State* (Moscow, 1948), p. 146. The expenditures include those of the Union, republics, and local governments.

⁴¹ USSR Gosplan, Central Office of National-Economic Accounting, *Socialist Construction USSR, 1936* (Moscow, 1936), pp. 508-09.

⁴² *3d Plan*, pp. 228-29.

Plan scheduled the number employed in the services here analyzed at 4,521,000,⁴³ a rise of 27.6 percent from 1937. Part of this rise was due to expansion of the territory (only western Ukraine and western White Russia apparently were included in the respective statistics). No data on the labor force in the stated services in postwar years have come to the attention of the writer.

Wages are the major item in the expenditures on education and health services. The breakdown in labor and other costs shows a somewhat irregular picture owing to greatly differing rates of changes in wages and prices.⁴⁴ Factors other than the changes in wages and prices may have affected the composition of costs, but they are difficult to ascertain. The following data (in million rubles) give some idea about the situation:

Item	1928	1937	1941 Plan
Education			
Total	1,100*	16,455	26,612
Wages	535	8,385	...
Others	565	8,070	...
Percentage of wages ...	48.6	51.0	...
Health			
Total	300*	7,027	10,891
Wages	255	2,744	5,484
Others	45	4,283	5,407
Percentage of wages....	85	39.0	50.4
Total			
Total	1,400*	23,482	37,503
Wages	790	11,229	...
Others	610	12,253	...
Percentage of wages....	56.4	47.8	...

* Roughly. According to Plotnikov (*op. cit.*, p. 75), in 1928-29 the expenses on education amounted to 1,116.6 million rubles; on health, 328.6 million rubles.

On the basis of these data, the proportion of the wage bill in total expenditures in the two items investigated will be taken as having been equivalent to 50 percent in 1940. The same percentage is used for 1948, although a somewhat higher one might have been involved.

The expenditures on wages are deflated to real 1926-27 prices with the help of the living-cost indexes for urban wage

⁴³ 1941 Plan, Supplement, p. 512.

⁴⁴ This remark pertains primarily to the early 'thirties not covered in the subsequent analysis.

earners as computed above (see p. 59). It would not be true to say that the writer visualizes clearly the composition of the expenditures on education and health other than wages, and that he knows exactly what the involved organizations had to pay for the goods and services involved. It is certain that they could not have profited from the relatively low costs of construction because capital investments for education and health, as with everything else, fall under capital investments in the Soviet budget. The indefinite evidence on turnover taxes indicates that the institutions involved do not pay turnover taxes on goods they process themselves, but it is unlikely that they do a great deal of processing.⁴⁵ Most medical supplies are subject to almost nominal turnover taxes, while on other such goods the taxes are considerably smaller than on ordinary consumers' goods. The same is true of school supplies. The lower prices of professional clothing as compared with civilian clothing were already discussed in chapter iii; possibly linen for the hospitals also gets such a privileged treatment. It seems that the errors will not be too large if 4.5, 6.0, and 11.0 are used as divisors (deflators) for converting the 1937, 1940, and 1948 expenditures on education and health other than wages from current to real 1926-27 prices.

Hence the total expenditures of the Union, republics, and lower administration areas on education and health in actual prices and reduced to real 1926-27 prices work out as follows (in billion rubles):

Year	Personnel			Other expenditures			Total
	Actual prices	Conversion factor	Real 1926-27 prices	Actual prices	Conversion factor	Real 1926-27 prices	Real 1926-27 prices
1928 ..	0.8	1.0	0.8	0.6	1.0	0.6	1.4
1937 ..	11.2	7.5	1.5	12.3	4.5	2.7	4.2
1940 ..	15.7	11	1.4	15.7	6.0	2.6	4.0
1948 ..	37.5	22	1.7	37.5	11.0	3.4	5.1

At first glance it may seem absurd that a decline is shown in these expenditures in real 1926-27 prices from 1937 to 1940. But if there is an error, it is but small. With the decline in real wages, more labor could have been had at the same cost in real terms in 1940 than in 1937. Furthermore, with war preparations necessi-

⁴⁵ The taxes on the raw materials have to be paid anyway.

tating the greatest possible savings on everything except munitions, such savings certainly were sought on the supplies for education and health. There may well, for example, have been a curtailment in vacations at health resorts and sanitariums provided by the state.

Thus far the analyzed expenditures on education and health were those earmarked in the budgets for this purpose. The following evidence, while rather old, is available on the capital investments connected with education and health (in million rubles):

Year	Education	Health care
1935	550	430
1936	1,300	800
1937 (goal)	1,454	1,025

Data from *Planned Economy*, 1937, No. 3, pp. 222-23.

Related to the total expenditures on the respective items, the capital investments connected with education amounted in 1936 to around 10 percent, and the capital investments connected with health to somewhat more.⁴⁶

With reference to education, the expenditures found under capital investments were partly or more than offset by items of doubtful educational value or by those which, though educational, should be shown more properly under other budgetary items. Plotnikov failed to specify the expenses on military schools, while discussing them among other educational institutions. The expenses clearly earmarked for propaganda were relatively small. According to an official source not accessible to the writer, 285 million rubles were spent during 1933-37 on communist colleges and institutes for communist professors; and 800 million and 300 million rubles respectively for publications and press. For political enlightenment, 2.9 billion rubles were used, and 817 million for higher communist agricultural schools in the same five years. The schools for political enlightenment

⁴⁶ Actually the percentages may have been even higher. While the cost of depreciation would have to be deducted (the figures on capital investments were gross in those years), the purchasing power of the money spent on capital investments was much higher than that spent on other goods and services.

Analogous data on capital investments connected with education and health are available also in the 1941 Plan. For example, expenditures on capital investments connected with health services were to be 173 million rubles in 1941 (*1941 Plan, Supplement*, pp. 484-85). But this and other such appropriations were clearly affected in very large degree by war preparations.

also teach reading and writing, and the communist agricultural schools also teach agriculture. But the vast propaganda machine of the Party is paid for from one source or other, and it appears likely that a substantial portion of the funds come from those earmarked for education. The most important factor is, of course, an enigma—the expenditure on atomic research. If it is under education, as seems likely, the *total* expenditures on education serving the population may be greatly below those earmarked for this purpose. In view of uncertainties involved, only the expenditures earmarked for education and health in the consolidated budget of the Union, the republics, and the lesser political subdivisions are considered in the table on page 85, which summarizes the allocation of Soviet net national product for specified years of the Plan era.

CONCLUDING REMARKS

Expenditures on education and health, as computed above (see p. 80), constituted the following percentages of private consumption as computed on page 66, both items in real 1926–27 prices:

1928	6.2
1937	18.0
1940	16.0
1948	22.6

The indicated increase from 1928 to 1937 in education-health expenditure in relation to the value of total private consumption, little more than 10 percent, was obviously much too small to offset the disparity brought by the increase of wages of only 332 percent in the face of a rise of 650 percent in living costs. The increase in these expenses was insufficient to offset the decline in real wages even in the first half of 1939. Only if one shifts to the per capita basis of the total population dependent on income from wages may the 1928 consumption levels be considered as having been about restored by that time, provided the gratuitous services are accepted by the consumers as fully equal to their wage income, real 1926–27 ruble per such ruble.

The peasants' incomes did not show the continuing rise displayed by workers' real wages between 1937 and 1939. The offsetting effect of the additional expenditures on education and

health, even if accepted for such a role, was never sufficient in the case of peasants to offset the decline in real per capita incomes.

* * *

If the analysis of consumption levels here presented is to be considered as new, it is only to the extent that the rate of decline in consumption levels during the Plan era to a certain extent has been made explicit. Every unprejudiced observer should have had at least a notion of what was going on even without this analysis. Hence the present writer felt that not all was well, when the world-renowned *Economist*, referring to the latest prewar years, wrote: "The mass of the food-producing peasantry was undoubtedly consuming more than it had done before."⁴⁷ The statement was embodied in a series of articles. The series was replete with uncritical reproduction of falsified or simply thoroughly wrong Soviet statistics. Typical were the data on industrial output and national income in the phantom "unchangeable 1926-27 prices"⁴⁸ which exaggerated the 1948 industrial output and net national product by about 130-40 percent (see chart p. 23), or the figure for the 1940 grain crop,⁴⁹ which actually was in the so-called "biological" terms and exceeded the real crop of that year by 25 percent or more. The *Economist's* error with reference to the relation between Soviet expenditures on "defense" and education was mentioned above in chapter i. It is unnecessary here to specify numerous other errors.

The present writer called attention to such errors in a letter to the editor of the *Economist*. The editorial answer found unconvincing my abbreviated statement on several of the points discussed above, and called "dishonest and ludicrous" the suggestion that the articles criticized "were based on an uncritical acceptance of Soviet statistics." But the *Economist* later declined to provide space for an elaboration of my short statements.⁵⁰ This occurrence is merely another proof of the immense power of Soviet propaganda.

⁴⁷ *The Economist*, Dec. 25, 1948, p. 1068.

⁴⁸ *Ibid.*, Dec. 11, 1948, p. 974, and Dec. 18, 1948, p. 1022.

⁴⁹ *Ibid.*, Dec. 25, 1948, p. 1068.

⁵⁰ *Ibid.*, Dec. 31, 1949, p. 1463.

CHAPTER V

CONCLUSION

To make comparable the net national product computed by way of production in chapter ii and by way of allocation in chapters iii and iv, the former must be converted into the American, or non-Soviet, concept of national income. For 1928 a conversion factor may be used which is implied in the data of the Gosplan; at that time the statistics of this institution were still truthful. The Gosplan computations were as follows (in million rubles at prices of respective years):

Year	Soviet concept	Non-Soviet concept	Difference in percentage
1925-26	21,230	23,615	+11.2
1926-27	22,937	25,320	+10.4
1927-28	25,342	27,697	+ 9.3
1928-29	30,009	32,217	+ 7.3
1929-30 (goal)	33,963	37,258	+ 9.7

Data from *Control Figures of the National Economy USSR for 1929-30*, pp. 466-67, 470-71. The computation here designated non-Soviet is found in the section under the heading "Distribution of National Income in the USSR," but the composition of the individual items seems to indicate that everything, or practically everything, needed for the non-Soviet concept was considered. The excess of the second set of figures cannot be explained otherwise than on the assumption that it represents the missing items. This clandestine introduction of the non-Soviet concept of national income is noteworthy. Correct analysis cannot be made otherwise, and at that time the Gosplan still was anxious to make its analysis correct.

It seems acceptable to regard 9 percent as the excess of net national product, non-Soviet concept over Soviet concept, for 1928. Since we here take 25 billion rubles as the 1928 net national product, Soviet concept, at 1926-27 prices, rather than the somewhat higher figure of the Gosplan (25.3 billion), that figure is to be raised by 9 percent to convert to the non-Soviet concept.

Krasnolobov stated in a book that is not accessible to this writer that the proportion of gainfully employed outside of "material production" was equivalent to 10 percent in 1937. On the assumption that the value product of this 10 percent was on the average the same as of the 90 percent engaged in "material production," Baran increased accordingly the estimate of 1937 Soviet

national income (Soviet concept) which he used, and the same procedure is followed here with reference to the estimate of net national product (Soviet concept), as computed here for 1937. This percentage is raised to 11 and to 12 for the net national product of 1940 and 1948 respectively, to allow for the greater expenditures on the pay and upkeep of the armed forces and of wages of the personnel engaged in education and health.

After this final adjustment, the net national product computed from the two directions is as shown in the accompanying table.

USSR: NET NATIONAL PRODUCT, SPECIFIED YEARS*

(Billion rubles at real 1926-27 prices)

Item	1928	1937	1940	1948
As determined from production, total ^a	27.3	59.1	71.9	68.2
As determined from allocations:				
Total accounted for, with some duplications ^b	27.9	55.2	66.2	66.8
Armed forces, <i>earmarked</i>	0.7	5.7	13.2	13.3
Net investment	4.8	22.0	24.4	27.2
Subtotal	5.5	27.7	37.6	40.5
Private consumption	21.0	23.3	24.6	21.2
Education and health	1.4	4.2	4.0	5.1
Subtotal	22.4	27.5	28.6	26.3
Duplication	1.1	2.0	2.6	2.8
Total accounted for, less duplications ^c	26.8	53.2	63.6	64.0
Percentage of grand total accounted for				
Armed forces, <i>earmarked</i>	2.5	10.3	19.9	19.9
Net investment	17.2	39.9	36.8	40.7
Subtotal	19.7	50.2	56.8	60.6
Private consumption	75.3	42.2	37.2	31.7
Education and health	5.0	7.6	6.0	7.6
Subtotal	80.3	49.8	43.2	39.4

* Writer's estimates; American concept of national income.

^a Determined for the Soviet concept by the procedure used in the USSR, and adjusted to the American concept.

^b Unaccounted for: government services other than education and health service, but including MVD; less disbursed wages.

^c Pay and upkeep of armed forces and pay of personnel in education and health services.

DISCREPANCIES

The two sets of estimates show certain discrepancies. The one for 1928 could be easily wiped out by using a somewhat higher figure for the total national income, Soviet concept, than the 25 billion rubles actually used. Twenty-five billion rubles is the official, probably rounded, figure determined from the production

end. The discrepancy involves a few tenths of a billion rubles in any event. The estimates obtained from the production end for 1937 and 1940 obviously exceed those arrived at from the allocation end by a margin greater than the outlays not accounted for in the allocation computation. These discrepancies too are negligible, not only as compared with the difference between the official estimates and either of the two estimates made here, but in consideration of the difficulties of analysis involved. In the computations for 1948, on the other hand, the estimate obtained from the allocation end proves somewhat too high, relative to that arrived at from the production end.

Since the discrepancies between the two sets of estimates are minor, there is no urgent need to spend time trying to eliminate them, even if this were possible. Actually, the writer sees no way to do this in his present situation. If one would venture a guess, the reason, or one of the reasons, for the discrepancies between the estimates for 1937 and 1940 may be in the assumption of too high a share of contribution to national income from the gross industrial output (see p. 33). This in turn may have been brought about by the fact that repeated processing of consumers' goods, although assigned a great importance, was still not given the full weight it really had.

THE FINDINGS

Through exertion of tremendous dictatorial power, the Soviets have succeeded in diverting an amazingly large proportion of the national income first to new investment, and later to new investment and "defense." The large new investment permitted a great expansion of industrial output. Continued expansion is to be expected in the future. The most highly perfected device of the Plan era, however, was that for keeping down consumption.

The ability of the USSR to expand its industrial output and "defense" preparedness rapidly should in no case be minimized. To do so is extremely dangerous. Yet it is unwise to lose sight of the fact that thus far the expansion and the preparedness were attained by severe cuts in the consumption levels of the population. The facts that consumption failed to reach the pre-Plan level even in the *best* prewar year, and that specifically the consumption of the peasants was *substantially below* this level, are laden with vast economic and political implications.

Net investment and military expenditures.—The shares of net investment and military expenditures in net national product, as shown in the table on page 85, may seem improbably high, amounting as they do to 57 percent in 1940 and over 60 percent in 1948. Yet they are in line with official computations as far as these are available and are properly interpreted.

The 3d Plan¹ estimated the 1937 investment (including reserves) in 1937 prices at 24.5 percent of net national product, as against a figure of perhaps 40 percent implied in the estimates as computed here (see the table on p. 85). It has been mentioned here and will be shown in greater detail in a subsequent study that the official estimates of net national product in current prices, and other similar computations, must be adjusted for turnover taxes, which fall almost exclusively on private consumption, and also for state subsidies to the state economic enterprises, and the uneven distribution of profits of industries producing producers' goods and consumers' goods, two factors from which net investment and "defense" are the principal beneficiaries. It was shown that private consumption amounted to about 165 billion rubles in 1937 at current prices. Turnover taxes yielded the huge amount of 59.4 billion rubles in that year. If 85 percent of this is assumed to have been the share of private consumption in turnover taxes, the above percentage for the share of investment in net national product rises to about 30. While the state subsidies to industry were not large in 1937, they and the profits in consumers' goods industries, which are considerably higher than in the producers' goods industries, did not fail to raise this percentage still higher. The relatively small balance of the difference between the 40 percent as computed in the table on page 85 and the 24.5 percent computed in the 3d Plan is due to the fact that, even after all the adjustments, the prices of producers' goods were relatively lower in 1937 than in 1926–27 prices.

In 1940, net investment, military expenditures, and their total, as implied in official estimates given by Voznesenskii,² amounted to 19, 7, and 26 percent respectively of net national product. Gerschenkron raised these percentages to 28, 10, and 38

¹ 3d Plan, p. 197.

² Voznesenskii, *War Economy of the USSR During the Patriotic War*, pp. 65–67.

respectively, by adjusting them for turnover taxes.³ He deducted all proceeds of turnover taxes from private consumption, although they fell in small part on net investment and the armed forces. On the other hand, Voznesenskii's data need adjustments for state subsidies and the uneven distribution of profits of the state industries, from which net investment and "defense" profit almost exclusively.

Voznesenskii's percentage for the share of "defense" expenditures in 1940 (less private consumption of the men in the armed forces), only about 7, certainly implies a great manipulation. The earmarked expenditures on the armed forces amounted to 56.7 billion rubles in 1940. If 21 percent of this amount is deducted for pay and upkeep (see Appendix Table II) the balance of 45 billion rubles, together with the above percentage, implies a net national product of about 650 billion rubles—a vastly exaggerated figure.⁴ It is difficult to visualize the items in military expenditure which might have been transferred to private consumption in Voznesenskii's "statistics."

On the other hand, Voznesenskii's percentage for the share of net investment in net national product, about 19, after necessary adjustments, falls below the approximately 37 percent shown in the table on page 85 only by about the amount for which the price pattern is responsible.

Wyler's total for net investment and military expenditures in 1940 (37.7 percent of net national product) is lower than the percentage computed here, which would itself be lower if it were computed in dollars, although the writer's percentage might still remain above that of Wyler. Wyler's estimated relationship between the items of net investment and of military expenditures in 1940 is the reverse of the relationships given by Voznesenskii and the present writer: military expenditures are about two-thirds of the total according to Wyler, as compared with little more than one-quarter according to Voznesenskii, and little more than one-third according to the writer. If computed in dollars, net investment must have amounted to a considerably smaller percentage of net national product than if computed in 1926-27 prices, but

³ See Alexander Gerschenkron's review of Voznesenskii's book in *American Economic Review*, September 1948, XXXVIII, 654.

⁴ Net national product of 1940 at current prices without any adjustment is unlikely to have exceeded 500 billion rubles.

Wylér's estimate appears to be a substantial underestimate even for such a dollar computation. His method of converting the military expenditures to dollars is another important factor responsible for his conclusion that military expenditures much exceeded net investment. The arbitrariness of this procedure was pointed out above and restrains the writer from making such a dollar conversion.⁵

It is to be granted that the 1926-27 pattern of price relationships was not a good yardstick for the distribution of net national product among its components in 1937, 1940, or 1948. The economic pattern of the country changed too much during the intervening years. Specifically, the 1926-27 prices of machinery and capital goods in general have become relatively much too high, or the prices of consumers' goods have become relatively much too low. It is impossible to decide what sort of pattern of price relationships would have corresponded to the stage of economic development reached by the USSR in 1940 or 1948, although one may be sure that it would not have been the pattern of price relationships in the United States. If we assume such a really drastic change in price relationships that Soviet 1926-27 prices of consumers' goods had become so much higher that living costs would have been 50 percent higher than they really were, or that producers' goods had become correspondingly cheaper, net investments and the *earmarked* expenditures on the armed forces in 1948 would still have been not much short of 50 percent of net national product.

It cannot be emphasized too strongly that all evidence indicates that during the Plan era an enormous share of the net national product went into net investment and "defense" expenses, and that while the rate of increase in this share slackened in later years, there has been no indication that the rise will stop entirely.

Unlike Wylér, the writer regards the increase in investments attained by the Soviets during the Plan era as large, and the level attained as high. The writer's admittedly rough computations indicate that in the period 1937-40 new investments each year

⁵ Wylér ("The National Income of Soviet Russia," *Social Research*, December 1946, XIII, 512) would have encountered grave difficulties if he had attempted to determine net national product and the share of military expenses in it during the war years. National product would have turned out to be very large and would have consisted almost exclusively of military expenditures.

were not much less than the total net national product in 1928, the year before the inauguration of the Plan era. Even if our estimates of net investment are scaled down for the omissions mentioned on page 46, the balance still stands as one which could never have been reached in a poor country like Russia under any other government than that of the Soviets.

Moreover, the real effect of the Plan era from the point of view of the Soviets and also from that of the non-Soviet world is not revealed fully in the fact that net investment was more than quadrupled. The direction of the net investment is equally, or even more, important. An ever increasing proportion of the total went into industry. Within industry as a whole, an ever increasing proportion was assigned to industries producing producers' goods including armaments, as one must bear in mind.

In appraising the expansion of the industries producing producers' goods during the Plan era, it must be remembered that the policy of fostering it was pursued also before 1927-28. The gross investments in the fixed capital of large-scale industries producing producers' goods more than doubled in the two preceding years, increasing from 566 million rubles in 1925-26 to 1,269 million rubles in 1927-28. Nevertheless, net investments in the fixed capital of industries producing producers' goods grew 12-fold to 15-fold from 1928 to 1940 in terms of current prices or perhaps 5.5-fold to 6.5-fold after the 1940 value is deflated to that of 1928.

Consumption levels.—It hardly needs to be emphasized that wage earners in the Soviet Union cannot have been enthusiastic about their consumption levels during the Plan era. Hostility may be greatest in the countryside. At the cost of several million human lives, the Communists dispossessed close to 100 million peasants, compelling them to give up their entrepreneurial independence and to work much more than formerly,⁶ and this without compensation in the form of even slightly improved consumption levels. This necessarily leads to great and persisting discord and friction, indeed to a factual though concealed war between the government and the peasants. This war recently flared up as a result of the drive to increase greatly the size of collective farms, with the accompanying resettlement of peasants

⁶ Jasny, *The Socialized Agriculture of the USSR*, pp. 415-46.

and the diminution of the private garden land actually available for use by the "members" of collective farms.^{6*}

Even in peacetime it was possible to keep the Soviet machine going only by increasingly powerful dictatorial methods, including concentration camps as a permanent institution. The Soviet power was shaking at its roots in the first months of World War II. As Crankshaw pointed out recently,⁷ the hostile attitude of the population still considerably weakens the Soviet power, and the same is forecast for the future.

The era of the Five-Year Plans, the era which brought the great successes in industrialization and "defense," was characterized also by a number of failures and only partial fulfillment of many important goals, indeed crucial ones. Soviet large-scale agriculture, equipped with modern large-scale machinery, displays little superiority over the small-scale primitive peasant economy of the former days. The agricultural output fails to show any considerable expansion. Labor productivity on a per hour basis did not increase at all, at least before the war. The result was merely that the much more intensive utilization of the labor engaged in agriculture, and the partial replacement of farm by industrial labor in it, released substantial numbers for use in the expanding industry and thus permitted partial fulfillment of the goals for the enlargement of industrial capacity. Part of the labor force augmented by the collectivization of peasant farming had, however, to be wasted in concentration camps. The goals for increased labor productivity in the sectors of the national economy other than agriculture could have been only partially fulfilled.

When production levels much smaller than were expected failed to permit both rapid industrialization and improvement in consumption levels, the interests of the population were readily sacrificed. However, it seems to be going too far to declare, as does a reviewer of this writer's book on Soviet agriculture,⁸ that the industrialization drive was always the sole aim of the Soviets. This would obviously imply, not that the raising of the living standards turned into hypocrisy only after failure to reach many

^{6*} See the writer's discussion at the meeting of the American Economic Association in Chicago in December 1950, recorded in *American Economic Review* (Proceedings number), May 1951, XLI, 486-88.

⁷ Edward Crankshaw in *New York Times*, Mar. 12, 1950, Magazine Section, p. 29.

⁸ J. A. Kershaw, in *American Economic Review*, March 1950, XL, 186.

relevant goals, as the present writer believes, but that it was nothing but hypocrisy from the very start. While the opinion of the reviewer assigns to the Bolsheviks a measure of diabolic deceit and treachery which seems to be excessive, he also grants to them and to their system a degree of infallibility which is quite out of accord with the facts. There is an appearance here of *post factum* wisdom.

While opinions like Kershaw's are in a way appreciative of the Soviet system, Soviet spokesmen will never accept them. At the World Congress of the Comintern in Moscow in 1935, i.e., at a time when the original plans for raising living standards were definitely shattered, and even the restoration of the pre-Plan consumption levels was not just around the corner, Molotov formulated the three basic aims of the Russian Communists. Improvement in living standards was one of them.⁹ This tune is played incessantly. A recent statement, prominently placed in the journal of the Academy of Sciences of the USSR, reads as follows:

The construction of the Kuibishev, Stalingrad and Kakhovka hydroelectric stations of the Principal Turkmen, South-Ukrainean and North-Crimean canals is a forthright demonstration of the concern of comrade Stalin, the Communist party, and the Soviet government for the good and flourishing of our Fatherland, *for the raising of the welfare of the working people of the country of socialism* [italics of the source].¹⁰

The Russian Communists not only never repudiated the aim of high-living standards such as are supposed to be attainable only under socialism and communism, but they vociferously insist that a large part of this aim has been reached. The manipulation of the statistics, whose beginning coincided with the great deterioration of consumption levels in the early 'thirties, was largely undertaken to conceal this very fact. One of the greatest dangers is that the Communists are widely believed. As stated earlier, many students of the Soviet economy outside the USSR accept the Soviet indexes of national income; and this acceptance, even with qualifications, implies acceptance of the claim of greatly improved living standards. Many have accepted such claims *verbatim*. The fact that Kershaw in his review concurs with the present writer's findings with reference to consumption levels is a testimonial that the labor of working out the findings was not wasted.

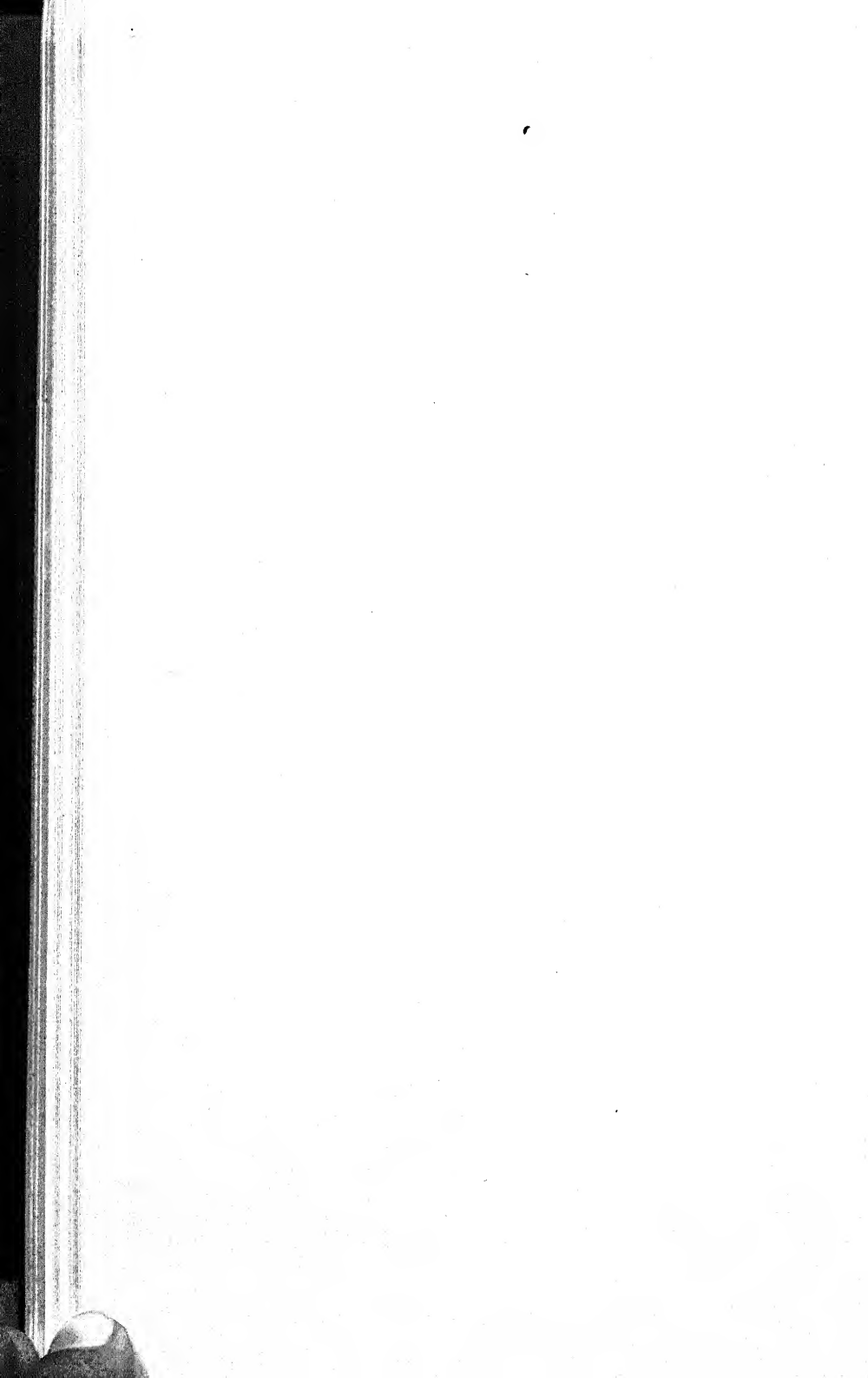
Improvements in Soviet living standards in the last few years

⁹ See Adolf Weber, *Marktwirtschaft und Sowjetwirtschaft, ein Vergleich* (München, 1949), p. 1.

¹⁰ *Questions of Economics*, 1950, No. 9, p. 7.

are merely a delayed return to prewar conditions, not fully accomplished in 1950. Thus far the Bolsheviks have shown no tendency to revise their general policy with reference to the distribution of goods produced. On the contrary, the perfection of the dictatorial grip on resources and on population has been utilized to divert an ever increasing fraction of currently produced resources to new investment, other than that serving the consumer, and to "defense." The possibility must be granted theoretically that one of these days the Soviets may decide that total resources are sufficiently large at once to permit further industrialization at "mad" tempi and maintenance of a situation of being armed to the teeth, and nevertheless to allow quite rapid improvement in living standards. To the present writer this smacks of Bolsheviks ceasing to be Bolsheviks. But, even granting such an eventuality, it should be realized that a diversion, relatively easily accomplished, of a larger portion of new investment to housing and the branches of industry producing consumers' goods in the future would not suffice for a substantial improvement of consumption levels. In the conditions of such poor countries as the USSR, almost all consumers' goods except housing are produced from agricultural raw materials. It would be a tremendous task for Soviet agriculture, the weakest point in the economy, to expand its output to such an extent that even the 1928 level of per capita consumption of animal products by the urban and rural populations could be regained. If this can be attained by the Bolsheviks at all, it must in any case be a prolonged process.

Soviet agriculture with its huge farms and machines of sizes larger than are used in any other country of the world cannot operate effectively under any other political system. The greatly expanded industrial production of the USSR to a large extent consists of means of production which would not be needed in present amounts, and in their present composition, under other political conditions. Part of the present output of consumers' goods in their present form also will not find buyers. The immense sacrifices of the Russian people were not and are not temporary. So may prove the "brilliant" Soviet attainments. When one thinks of what may come after the Stalin regime, one cannot but be reminded of Pushkin's fable of the fisherman and the goldfish. Only a broken dish remained after the palace and other great riches were gone.



APPENDIX AND INDEX

APPENDIX NOTE

LIVING COSTS OF WAGE EARNERS

This constitutes a first effort to construct indexes of living costs of urban workers during the era of the Five-Year Plans. While the indexes are strictly preliminary, the writer feels reasonably confident that they fall within proper, although broad, orders of magnitude. The reader is warned, however, not to treat them as exact. As an extremely useful by-product, indexes of retail prices were obtained. They also were weighted by the purchases of the urban wage earners, and this must be remembered in applying them to the purchases of the rural population, retail-trade turnover, etc.

All computations are limited to the years 1926-27, 1928, 1937, 1940, and 1948. As weights we use those underlying the indexes of the living costs of urban workers, put out by the Central Statistical Board, Bureau of Labor, in co-operation with the Gosplan. The weights used were those as revised for the last time in 1927 on the basis of consumption levels in the whole of the USSR in 1925-26—before the indexes, at least those released, were discontinued entirely in 1929.¹

This latest version of the official indexes comprised 40 "commodities," services for some reason having also been designated commodities. Many items were not individual commodities, but representatives of groups of commodities, so that practically all consumption of the type considered was covered. In the aggregate the 40 "commodities" represented about 85 percent of the worker's total budget. Most items not covered were of the nature of transfer payments, such as repayment of debts, loans to others, savings, and expenses in owned enterprises. Items which should have been included, but were not, were social expenses, such as trade-union fees, as well as expenses on alcoholic beverages. Items 1-21 in the index covered foods; items 22-26, clothing and shoes; 27-28, home utensils; 29-30, material for heating and lighting; 31-32, tobacco and matches; 33, soap; 34-36, house rent, electricity, and water, respectively; 37, transportation; 38-40, cultural needs and entertainment.

Expenses on food amounted to 54.3 percent of workers' total expenditures covered in the base year. Of these, slightly more than one-third went for purchases of grain products and exactly one-quarter for meat and meat products. Expenses on clothing and shoes amounted to 20.8 percent of the total (the figure includes preparation, repairs, and washing). Thus food, clothing, and shoes demanded fully three-quarters of the total expenses considered.

Subdivision of the individual items into commodities and services was made by the writer (see Appendix Table III) on the basis of Kabo's study and other studies of the USSR Central Statistical Board, Bureau of Labor.² The

¹ E. Kabo, "Index of Living Costs in 1925-26 and in the First Half of 1926-27," *Statistics of Labor* (Moscow), 1927, No. 3, pp. 1-13.

² See especially USSR Central Statistical Board, Bureau of Labor, *Budgets of Workers and Employees* (Moscow, 1929), Vol. I. The last publication of this kind was apparently N. Filippova, "Dynamics of the Budget of a Worker's Family in 1928 (November 1927-November 1928)," *Statistical Courier*, December 1929.

cost of services, which included house rent, made up only 13.5 percent of the costs considered in the base year;³ specifically, house rent amounted to only 5.5 percent. The cost of services would, of course, have been even less if it were related to all expenses. The indexes as here computed had to be based on a limited number of goods. So far as services are concerned, a considerable amount of estimating and guessing had to be resorted to. Such defects cannot have affected the indexes appreciably, because expenditures on services, already small in the base year, were persistently declining.

The first approach is to compute the living costs of workers at Moscow prices, and the very first, at the prices in government and co-operative stores.⁴ The indexes thus obtained are then roughly adjusted for the higher prices which prevailed in private trade in 1926-27 and in 1928. Thus the indexes of the living costs of workers at weighted Moscow prices are obtained (see Appendix Tables III and IV). A crude adjustment for the almost full elimination of regional price differentials during the Plan era is then attempted. Finally, the living costs of employees are brought in relation to those of workers.

The road through cost at Moscow government and co-operative stores, cost at Moscow weighted prices, to cost at weighted prices in the USSR is certainly a winding one. It may seem simpler to use for 1926-27 and 1928 the average prices paid by the surveyed families. However, these prices pertain to unspecified grades; they would furthermore need adjustments for seasonal fluctuations (they are for November); and their representative nature as to territory would have to be checked. We examined those prices and doubt that the results would be significantly different.

LIVING COSTS OF WORKERS AT MOSCOW PRICES IN STATE AND CO-OPERATIVE TRADE

Grain products.—During the Plan era consumers were forced to change fundamentally the composition of the grain products which they consumed. In the base year, the families surveyed in the whole of the USSR covered more than half of their requirements for grain products (other than groats) in the form of flour; almost two-thirds of this was wheat flour, 80 percent of it of good and medium grades. White bread comprised more than one-third of the total purchased bread. As can be observed from the products for which prices were quoted by the Moscow statistical office, and from other evidence, the Moscow population consumed primarily white wheat flour, white wheat bread, and whole-rye bread. By establishing disproportionately high prices on flour relative to bread, and by charging disproportionately high prices for even reasonably white flour and bread, consumption in succeeding years was limited almost exclusively to whole-rye bread, whole-wheat bread, gray wheat bread, and gray wheat flour.

³ It would have been only 10.9 percent if services on clothing and shoes were transferred back to the respective commodities where they had been in the source.

⁴ The sources are too numerous to list. The 1926-27 and 1928 prices are mainly from *Monthly Statistical Bulletin for Moscow and Moscow Guberniya* (Moscow), various issues, 1926-28. The 1937 and 1940 prices are mainly from *Monthly Labor Review* (U.S. Dept. Labor, Bur. Labor Stat.), November 1939, XLIX, 1276-78, and May 1940, L, 1272-74, and similar unpublished material. Data on 1948 prices are from USSR Commissariat of Trade, Order No. 550 (Moscow papers for Dec. 16, 1947) and from the government order of Apr. 10, 1948 (Moscow papers for Apr. 10, 1948).

It seemed unreasonable to base the price and cost indexes on the proportions of bread and flour of the pre-Plan era. But the writer possibly went too far in trying not to show the rise in living costs during the Plan era as unnecessarily high, when the higher grades of wheat bread and flour which were discriminated against by the price system during the Plan era were almost entirely disregarded in the indexes, although consumers had clearly shown their preference for these products at price relationships which prevailed before the Plan era and were in line with production costs.

The weights for grain products used in official living-cost indexes and those used here are shown below (in percentages of total expenditures accounted for):

Item	Official indexes	Here used
Rye flour	2.1	None
Rye bread	1.5 ^a	3.6 ^b
Wheat flour	6.5 ^c	1.0 ^d
Wheat bread	6.1	11.6 ^e
Buckwheat groats	1.5	1.5
Millet groats	0.8	0.8
Total	18.5	18.5

^a Mostly whole-rye bread.

^b Exclusively whole-rye bread.

^c Mostly good to medium.

^d Medium.

^e From flour of 85 percent extraction, i.e., bread next to whole-wheat bread in price.

The drastic shift in the weights from the official ones to those accepted here pressed down the increase in living costs during the Plan era quite substantially. The increases in expenditures on grain products would have turned out even lower, however, if whole-wheat bread were considered in them.

Other food products.—So far as concerns *potatoes* and *vegetables*, the index is based on the prices of potatoes only. Since potatoes were exceptionally cheap in Moscow in 1926–27, the index of the prices of potatoes and vegetables (weight, 3.6 percent of the total in the index) was made to rise too strongly.

The index of *meat* prices is based on the prices of beef. It is difficult to ascertain how this procedure affected the indexes so far as the composition by types of meats consumed is concerned. But the several-fold increase in the output and sales of sausage during the Plan era leaves no doubt that sausage was forced on consumers, and the disregard of this shift lessened the rise in the price index.

The index of *sugar* and *sweets* is based on the price of lump sugar. Like sausage, sweets were forced on consumers, who were compelled to buy sweets because sugar was not obtainable. Hence here is another case of understating the rise of living costs.

Clothing and shoes.—The expenditures on clothing are based here on the price of one item only, namely calico. This is the cheapest and most widely used cotton cloth in the USSR. In the official index, in which cotton goods accounted for almost half of the total expenses on clothing, calico was used as representative of all cotton goods. During the Plan era, calico has been sub-

ject to the lowest turnover tax among cotton goods. The price of mercerized sateen, 2.5-fold that of calico, in force in 1948,⁵ also indicates a greater price increase in better cotton goods than in the price of calico.

Almost the whole balance of expenditures on clothing in the official living-cost indexes went to purchases of woolen goods. The average prices paid by the families surveyed for these goods in 1926-27 (4.72 rubles per meter for cloth in the bolt and 11.50 rubles per meter of cloth in ready-made goods),⁶ and other evidence, indicate that a large part of the purchases were made up of pure, although coarse, woolen goods.⁷ Wool had become very scarce during the Plan era (first absolutely, later relatively to the demand), and all goods including clothes from all wool were held at prohibitive prices. All-woolen cloth called "Boston" was retailed at 450 rubles in 1948; it cost only 9.00-9.50 rubles in 1927 and 1928.⁸ Even mixed woolen goods apparently increased in price not less than, or even more than, calico. A baize of coarse wool mixed with cotton cost 108 rubles in 1948; the same cloth, but all wool, cost about 5.50 rubles in 1927 and 1928.⁹

It is reasonably certain that the basing of the price indexes for clothing on the prices of calico made the rise in the cost of clothing appear less than it really was.

In making up the indexes of shoe prices, ordinary shoes, felt boots (used rather extensively in the USSR), and rubber shoes were considered. The shoe prices of 1936¹⁰ were used for 1937. The prices of 1940 were partly estimated. The price of the cheapest sort of black leather shoes was used.¹¹ Since the price margins between better and poorer shoes had apparently become greater, the rise in prices of shoes was moderately underestimated.

Tobacco.—It was decided to base the indexes of expenditures on tobacco on the price of the cheapest grade of cigarettes (2 rubles for 20 units after April 10, 1948), although the price margin between the poorest and average grades was raised greatly as compared with pre-Plan (in 1948 it was 2.4 fold). For this purpose the price of cigarettes was estimated, probably too high, at 10 kopeks for 20 units in 1926-27 and 1928 and, probably too low, at 1 ruble for 20 units in 1937 and 1940 (the lowest price reported from Moscow by the usual channels was 2.25 rubles for 25 units in both years).

⁵ Available in the source quoted for 1927 prices (on page 98).

⁶ *Budgets of Workers and Employees*, I, 49.

⁷ These were the average retail prices of the co-operative trade in Moscow at the end of 1928 (in rubles per meter): drape, "October," all wool, 7.77; drape, first quality, mixed wool, 4.33; "Record," pure wool, for dresses, 3.19; castor first quality (probably all wool), 5.83; drape, coarse, all wool, 4. See *Monthly Statistical Bulletin for Moscow and Moscow Guberniya*, December 1928, p. 34. The enumerated goods were the only ones of this kind quoted in the source.

⁸ *Universal Reference Book of Prices*, edited by S. P. Sereda et al. (Moscow, 1928), p. 671. The prices of standard rather than top quality were used.

⁹ *Ibid.*, p. 673. The wholesale prices stated in the source were adjusted to the retail level.

¹⁰ Moscow Section of Internal Trade, *Reference Book of Retail Prices and Trade Margins on Industrial Goods in Moscow* (Moscow, 1936), pp. 51, 90.

¹¹ For example, the same shoes, though brown, cost 10 rubles or 12.5-14 percent more in 1936 than black shoes, the prices of which were used here. Either brown shoes were considered a luxury or, more likely, the leather was normally so poor that it had to be blackened.

Cigarette tobacco was neglected, although this omission, too, depressed the rise of the price indexes. The postwar price of *makhorka* (a very mediocre type of "tobacco") had to be estimated. It turned out slightly higher than the price assumed in the computation.

Services.—The indexes for transportation costs were calculated from railway rates, although part of the cost, of course, was that of local transportation by streetcar and bus. Except for transportation, house rent, and communal services (electricity and water), the increase in the cost of services was assumed to have been proportional to the rise in wages.

The totals.—The results of the computations are summarized in Appendix Tables III and IV. The Moscow prices of goods in co-operative and state trade, weighted by the purchases of workers' families, appear to have risen almost 9-fold from 1926-27 and 1928 to 1937. With the cost of services having gone up less than half as much, total living costs increased 8.1-fold from 1926-27 to 1937 and about 7.9-fold from 1928 to 1937. The weighted prices of consumers' goods rose a further 35 percent from 1937 to 1940, with an almost proportional rise in living costs. In 1948 prices of consumers' goods and living costs were more than double those in 1940. As compared with 1926-27, a 26-fold increase was recorded by the prices of consumers' goods in 1948.

The increases in the omitted social expenses would probably have to be counted at the rate of increase of wage indexes; and hence to include them would have reduced the increase in living costs to the extent that the rise in wages did not keep pace with these.

The bulk of the alcoholic beverages consumed by the surveyed families before the Plan era consisted of vodka, which went up in price more than 60-fold from 1926-27 to 1948. The inclusion of this item would raise the trend of prices and costs much more than the inclusion of social expenses would lower them.

The indexes of the prices of potatoes and vegetables seem to be the only ones which cannot be considered representative. If for 1926-27 the same price of potatoes were used as for 1928, the indexes of all considered goods' prices would be lower by about 13 points in 1937, 18 points in 1940, and 45 points in 1948, and the total living costs 11, 16, and 41 points lower respectively. On the other hand, a great number of factors forced the increase in the indexes down much more than this. Basing of the indexes on the grades of bread and flour of the pre-Plan years alone would have sufficed to offset the unrepresentative nature of the indexes for potatoes and vegetables. In addition was the fact that the compulsory substitution of the more expensive sausage, sweets, and cigarettes for meat, sugar, and tobacco was not considered.

The official living-cost indexes vs. budget expenses in November 1928.—The actual expenses of the surveyed families included several items not considered in the living-cost indexes, namely alcoholic beverages (2.4 percent of the 1928 budget), social expenditures such as trade-union fees, etc. (2.6 percent), help to absent members of family (1.4 percent), expenditures on owned enterprises (1.1 percent), loans to others and loans repaid (4.8 percent), other unknown expenses (3.1 percent), and unused income (1.7 percent)—a total of 17.1 percent out of a grand total of 102.2 percent of income. A comparison of the distribution of expenses of the surveyed families in No-

vember 1928 with the weights of the official living-cost indexes (1925-26) is given below (in percent) :

Expense item	Weights of official living-cost indexes, 1925-26 ^a	Distribution of expenses of surveyed families, November 1928	
		As per source	Adjusted ^a
Food	54.3	45.1	52.2
Clothing and shoes	20.8	20.2	23.4
Household goods	3.4	3.1	3.6
Heating and lighting	6.7	5.1	6.0
Tobacco and matches	1.8	1.4	1.6
Hygiene	1.2	0.9	1.0
Housing	5.5 }	7.1	8.2
Water and electricity	1.7 }		
Transportation	1.3	1.4 ^b	1.6
Cultural	3.0	2.2	2.5
Total	100	86.5	100
Alcoholic beverages .....	...	2.4	...
Social expenses .....	...	2.6	...
Others .....	...	10.7	...
Grand total .....	...	102.2	...

^a Expenses taken care of in official indexes equal 100.

^b Estimate.

The shifts in composition of consumption by major items from 1925-26 to November 1928 were such that indexes based on the composition of consumption in 1928 would show a smaller rise in succeeding years than the indexes based on official weights. But the difference is small, certainly less than 20 points for 1937, probably only about 10 points. The shifts in composition within the food item from 1926-27 to November 1928 were somewhat greater than those in all major consumption items. They are shown below (in percentages of the expense on food) :

Item	1926-27	November 1928
Grain products	34.0	...
Flour, bread, groats .....	...	24.0
Potatoes and vegetables	6.6	9.2
Sugar and sweets	9.5	7.9
Meat and meat products	24.8	28.9
Dairy products	13.1	12.5
Unspecified	None	7.7

The items unspecified for 1928 included alimentary pastes and possibly some other items shown under "grain products" among the weights of the official living-cost indexes. If, in the computation of indexes for 1937, 8 percent of the total food expenses is transferred from grain products to other foods, largely meat and meat products, the index of food costs goes down about 30 points, and, correspondingly, the index of the total living costs about 15 points.

As a whole, the use of the results of the survey of November 1928 as weights instead of the weights of the official living-cost indexes would reduce the 1937 index of living costs perhaps 25 points. But the justification for using

the 1928 composition rather than that of 1925-26 is very problematical. The changes in diet from 1925-26 to 1928 implied an improvement. But after 1928 the composition of consumption deteriorated again and soon became much worse than it was in 1925-26.

Checks with other writers.—Only a few comparisons with other authors can be made. These checks may be undertaken even at this early stage because the other price analyses were apparently based on Moscow prices in government and co-operative stores only.

Prokopovicz' price indexes for a basket of food consumed by a worker's family, with 1928 taken as 100, are 835 for 1937 and 1,382 for 1940.¹² The comparable indexes here computed, namely, those before adjustment, are 1,013 and 1,320 respectively. One of the reasons why Prokopovicz' 1937 index was lower than that of the writer is that Prokopovicz' weight for grain products is about 13 percent of all expenditures on food,¹³ while the indexes of the Bureau of Labor and Gosplan are based on a weight of these expenditures of over one-third of all expenditures for food, and even the data for November 1927 and November 1928 indicate shares of over 24.8 and 24.0 percent respectively.¹⁴ The 1937 food-price index computed here remains not inconsiderably above that of Prokopovicz even after adjustment downward for purchases from private trade in 1928 (1932, as against Prokopovicz' 835) made below.

According to Kravis and Mintzes, food prices, weighted by the consumption of workers' families in November 1928, rose 255.5 percent from January 1936 to January 1948.¹⁵ The analysis made here indicates an increase of 230 percent from 1937 to 1948. Prices in 1937 were practically the same as on January 1, 1936, and in the whole year of 1948 the same as on January 1, 1948. The rather minor difference between the two computations is partly due to the fact that wheaten bread which cost 1.70 rubles per kilogram in 1936 and 1937 was interpreted by the writer as costing 4.40 rubles in 1948, and 7.00 rubles by Kravis and Mintzes.¹⁶

Julius Wyler stated that the "cost-of-living index for foodstuffs and commodities [rose] from 100 in 1928 to about 1,240 in 1940, according to rough estimates."¹⁷ The index here computed for the same item is 1,207, i.e., for all practical purposes the same. It seems amazing that nobody appears to have paid attention to this finding of Wyler's, although it is of basic importance for any analysis of the Soviet economy under the Five-Year Plans.

The data underlying the indexes of 1937 living costs imply that services were equivalent to 5.2 percent of the expenditures considered in the index. Margolin's data, pertaining to about 1935, indicate about 11 percent for the share of expenditures on services in the total budget of workers and employees;¹⁸ recomputed to 1937, his figure would be about 9. But Margolin's

¹² Prokopovicz, *Russlands Volkswirtschaft unter den Sowjets*, p. 306.

¹³ *Ibid.*, p. 305.

¹⁴ Filippova, *op. cit.*, pp. 43, 48. The actual percentages were higher, because not all grain products were considered; see tabulation on page 102. There are other strange things in Prokopovicz' weights, such as the high figure for meat, the presence of rice and margarine, and the absence of buckwheat and millet groats.

¹⁵ I. B. Kravis and Joseph Mintzes, "Food Prices in the Soviet Union, 1936-50," *Review of Economics and Statistics*, May 1950, XXXII, 167.

¹⁶ *Ibid.*, p. 166.

¹⁷ Wyler, "The National Income of Soviet Russia," *Social Research*, December 1946, XIII, 508.

¹⁸ Margolin, *Balance of Money Incomes and Expenditures of the Population*, pp. 9, 118-21.

data represent actual costs rather than indexes. The principal reason why Margolin's data involved a larger share of services is that the indexes are based on *unchanged amounts of purchased commodities*, while *actually the purchases declined substantially*. The fact that not all services were considered in the official indexes is another factor. There was furthermore a considerable increase in the use of central heating, electricity, and similar services, but the "living space" per person declined substantially. All this considered, there is hardly a great deal of discrepancy left between Margolin's data and the estimates of the costs of services in 1937 as made here.

LIVING COSTS OF WORKERS AT MOSCOW WEIGHTED PRICES

In 1926-27 and 1928 a substantial proportion of the requirements was covered by purchases from private trade at prices considerably higher than in government and co-operative stores. In 1937, on the other hand, the prices in kolkhoz markets—the only important form of private trade remaining—are unlikely to have been measurably above the prices in government and co-operative trade. One cannot be positive about prices in kolkhoz markets in 1948; in view of the absence of adequate evidence it is assumed that in this year, too, there was no large discrepancy between the prices in the various markets. There is, however, no doubt whatsoever that, in 1940, prices in kolkhoz markets were much higher than in state and co-operative trade.¹⁹ While specific data were given for one day only (January 1, 1940), the phenomenon was reported to have started in 1939 and continued in 1940. In the first half of July the government sold no industrial goods (other than processed foods), and state and co-operative stores were empty in other times as well. On this consideration, an adjustment for the higher prices in private markets in 1926-27 and 1928 is made only for the years 1937 and 1948. The procedure utilized is pointed out in footnote *a* to Appendix Table III.

The adjustment for purchases from the private trade in 1926-27 and 1928 reduces the increase in prices of consumers' goods from 1926-27 to 1937 to 8.1-fold and of living costs to 7.5-fold the 1926-27 base. Correspondingly, the increase in consumers' goods prices from 1926-27 to 1948 goes down to about 24-fold and in living costs to around 22-fold. The rise from 1937 to 1940, on the other hand, is enlarged proportionately by the adjustment.

LIVING COSTS OF WORKERS AT WEIGHTED PRICES IN THE USSR

All analyses of Soviet retail prices thus far published have been limited to Moscow prices. So were those of the present writer. A shortcoming is involved in such a procedure, owing to a considerable regional differentiation which existed in pre-Plan time (the prices and living costs in the capitals, Moscow and Leningrad, were considerably above the average for the country as a whole) but almost disappeared during the Plan era. Pressure of time makes possible only a crude adjustment for this factor.

On January 1, 1928, the cost of the 40 "commodities" considered in the

¹⁹ *Monthly Labor Review*, May 1940, pp. 1273-74. Eggs were the only product mentioned in the report with a price excess in kolkhoz markets of less than 50 percent. It was more than 50 percent for meat, more than 100 percent for vegetables, almost 150 percent for milk, and over 1,000 percent for potatoes.

living-cost index of workers was as follows in the USSR as a whole and in Moscow (in rubles per adult per month):

Items	USSR	Moscow	Excess, Moscow over USSR (percent)
Farm products	11.11	14.91	34.2
Industrial goods	6.82	7.16	4.9
Others	2.66	3.03	13.9
Total	20.59	25.10	21.9

Data from *Statistics of Labor*, 1928, No. 1, p. 6.

The Bureau of Labor of the Central Statistical Board, which was responsible for the indexes, stated that the quality of the goods considered in them for the different areas was not always the same; there were also regional differences in composition of consumption. It recommended therefore "a certain caution" in using the data.²⁰

The big difference between living costs at Moscow and USSR prices was obviously in the cost of food. A large part of it was certainly genuine. Such bulky and/or perishable goods as potatoes, vegetables, and milk are naturally more expensive in Moscow than in the provinces. The average prices of meat, grain products, indeed of almost everything, also were higher there; tea, sugar, and salt may have been the only exceptions. But inspection of individual prices shows also certain qualitative differences, the Moscow goods having been superior in quality.

The relatively small excess in cost of industrial goods in Moscow (see tabulation above) is likely to have been fully or almost fully caused by the superior quality of goods consumed in Moscow. The balance of expenditures as shown in the tabulation consisted mainly of house rent, and rent may have been actually higher in Moscow than in the USSR as a whole.²¹ The balance furthermore included fuel, and this too was more expensive in Moscow.

It seems justified on the basis of this material to assume that in the pre-Plan era living costs of workers in Moscow were close to 15 percent higher than in the USSR as a whole.

The question is only how much of this price differential was wiped out during the Plan era. In 1948, the prices of industrial goods were the same in all urban areas.²² No evidence is at hand on house rent, but it seems probable that all areas gradually moved up to the permitted maximum of 44 kopeks per square meter (with the permitted additions for higher wages). Fuel remained more expensive in Moscow.

The main issue in the big change with reference to the regional differentials in living costs was in handling of the retail prices of food by the government during the Plan era. While food costs in the Moscow worker's budget exceeded the average for the Union by almost 35 percent in 1927, the 1948 food prices reveal only a small differentiation. The Order of the Ministry of

²⁰ *Statistics of Labor*, 1927, No. 9-10, p. 21.

²¹ The law of June 4, 1926 permitted a range from 26 kopeks per square meter in small towns to 44 kopeks in capitals (*Collection of Laws*, 1926, No. 44). A law dated May 14, 1928 for the RSFSR permitted a range from 35 to 44 kopeks per meter (*Collection of Laws*, 1928, No. 53). A recent source mentioned a range from 30 to 44 kopeks (V. D. Maslakov *et al.*, *Financing the Housing and Communal Economy*, Moscow, 1948, p. 116).

²² Order of the Minister of Trade No. 550 of Dec. 14, 1947, in Moscow papers of Dec. 16, 1947.

Trade No. 550 of December 1947, established equal prices for a number of secondary foods such as liquor and tea. In general, three zones are distinguished, and the city of Moscow together with Moscow oblast is always in Zone 2. Zone 1 with the lowest prices is large, while Zone 3 with the highest prices (except for fish) is small. Interzonal margins are mostly equal to about 10 percent. As a result, the prices in the big Zone 2 are only moderately above the average for the USSR, namely 3-4 percent. The total living costs in Moscow are likely to have exceeded those in the USSR in 1948 by no more than perhaps 2-3 percent. It seems reasonable to raise the 1948 adjusted index of living costs as computed on the basis of Moscow prices by 10 percent for the almost full elimination of the regional differential—to make it applicable to the whole of the USSR.

The writer is indebted to Mrs. Janet G. Chapman of the Russian Institute at Columbia University for evidence which shows that in 1936, too, there was practically no difference between the Moscow and USSR prices of all goods comprised in the workers' budgets. This justifies using the same 10 percent for all Plan years here considered in this strictly preliminary computation. The adjusted price indexes for food of 1937 and 1948 and the unadjusted 1940 food-price index are raised 15 percent—to make them applicable to the workers' budgets of the USSR as a whole—while the indexes for cost of services are raised 2 percent. With these final adjustments the indexes of food prices and living costs for all USSR urban workers are roughly as follows:

Year	Food	Total
1926-27	100	100
1928	103.1	101.4
1937	1,105	824
1940	1,565	1,208
1948	3,334	2,378

The changes in prices and living costs between 1926-27 and 1928 can be checked with official computations which not only are ample for that period but are fully reliable. According to the computations here made, the prices of consumers' goods remained almost unchanged over that period, while the living costs rose 1.4 percent. The index of retail prices of the Central Statistical Board rose by 2.5 percent in the same period,²³ while the index of retail prices of the Institute for Business Research (attached to the Commissariat of Finance and directed by N. A. Kondratiev) declined 1.1 percent.²⁴ The living-cost index for urban workers of the Bureau of Labor, Central Statistical Board, remained practically unchanged from 1926-27 to 1928 (increase of 0.2 percent).²⁵

It is easy to observe that except for 1940 the adjustment of the living-cost indexes for the Plan years for the regional differentials roughly brings one back to the indexes of living costs computed for workers on the basis of Moscow prices in state and co-operative trade. But the indexes of food prices for

²³ Average of prices on October 1, January 1, April 1, July 1, and October 1 for 1926-27, and January 1, April 1, July 1, October 1, 1928, and January 1, 1929 for 1928 with the first and last figure with half-weight. Prices except for January 1, 1929 from *Statistical Handbook USSR*, 1928, p. 725.

²⁴ *Economic Review* (published by *Economic Life*, Moscow), June 1929, p. 165.

²⁵ *Ibid.*

1937 and 1948 are raised more by the regional adjustment than they are reduced by the other adjustment; the boost is obviously greatest for the 1940 indexes of food prices which are not adjusted for the private-trade factor.

LIVING COSTS OF EMPLOYEES

The data for the living costs of employees seem applicable to employees on the basis of the official surveys. The differences in composition of costs shown by the surveys are indeed so small that they may have been accidental. The accompanying table compares the composition of living costs of surveyed employees' and workers' families in November 1927. The average income

USSR: COMPOSITION OF BUDGETARY EXPENDITURES OF EMPLOYEES' AND WORKERS' FAMILIES, 1927
(Percent)

Item	Employees ^a	Workers ^b
Food	48.7	44.2
Clothing and shoes	17.6	22.4
Liquor	0.3	2.8
Tobacco and matches	1.6	1.4
House furnishings	1.9	3.3
Hygiene, health	2.2	0.7
Cultural	4.2	1.8
Social	3.0	2.2
House rent	8.6	6.6
Lighting and heating materials	7.5	6.3
Help to absent family members	1.0	1.2
Own enterprises	0.3	1.6
Other expenses	3.1	5.5
Total except transfers	100	100

^a N. Gumilevskii, "Budget of Employees in November 1927," *Statistics of Labor*, 1927, No. 11-12, p. 17.

^b Filippova, *op. cit.*, p. 48.

and expenditure was only about 5 percent higher per adult person for employees' families than for workers' families. Contrary to expectations, the share of food in total expenditures of the employees turned out even larger than in the budgets of workers. Most of the difference was made up by more eating outside by employees. Employees' families spent 23.3 percent of their budget on house rent, lighting and heating materials, and cultural and social needs, while workers' families spent 16.9 percent, and those were expenses with relatively small cost rises during the Plan era. Employees also benefited from the smaller use of liquor, which rose in price more than anything else. The total increase of living costs of the employees during the Plan era was likely to have been perhaps 5 percent smaller than that of workers. The incomes of all employees amounted probably to no more than 40 percent of those of all wage earners.²⁶ Hence workers' living-cost indexes are unlikely to need a downward adjustment of more than 2 percent to make them applicable to all wage earners.

²⁶ In 1937, employees made up 12.6 percent of all wage earners in industry and construction. See *3d Plan*, pp. 228-29.

APPENDIX TABLES

TABLE I.—USSR: NET INVESTMENTS IN SPECIFIED YEARS*

Item	1928	1937	1940	1948
A. Investments in billion rubles at current prices				
Capital investments, state ^a	30.0	43.0	66.2
Owned variable capital of state organizations ^b	5.0	4.9	17.0
Kolkhoz investments ^c	4.0	3.5	6.0
All others (very rough) ^d	7.0	8.0	30.0
Total investments	4.66 ^e	46.0	59.4	119.2
B. Factors (divisors) for converting current to real 1926-27 prices ^f				
Capital investments, state	1.75	2.15	3.15
Owned variable capital of state organizations	4	6	11
Kolkhoz investments	3	4	6
All others (very rough)	3	3	8
C. Investments in billion rubles at real 1926-27 prices				
Capital investments, state	17.1	20.0	21.0
Owned variable capital of state organizations	1.3	0.8	1.5
Kolkhoz investments	1.3	0.9	1.0
All others (very rough)	2.3	2.7	3.7
Total investments	4.84	22.0	24.4	27.2
D. Investments in billion rubles at 1926-27 prices by type of investment				
Construction	12.5	13.0	15.1
Machinery and equipment	6.2	6.4	8.1
Others	3.3	5.0	4.0
Total investments	4.84	22.0	24.4	27.2
E. Factors (divisors) for converting rubles to U.S. dollars at 1926-27 prices				
Construction	3.5	3.5	3.5
Machinery and equipment	4.0	4.0	4.0
Others	2.5	2.0	2.5
F. Investments in billion U.S. dollars at 1926-27 prices by type of investment				
Construction	3.6	3.7	4.3
Machinery and equipment	1.5	1.6	2.0
Others	1.3	2.5	1.6
Total investments	1.50	6.4	7.8	7.9

* The estimates here presented are moderately higher than earlier ones by the writer; the difference is relatively substantial in the values at current prices, but considerably smaller in real 1926-27 prices or in dollars. In making the revisions, the writer consulted unpub-

lished studies by Gregory Crossman, and Abram Bergson and Hans Heymann, Jr., in addition to Abram Bergson's unpublished Appendix (mimeographed, obtainable from the author), pp. 15-16.

^a Figures for 1937 and 1940 from N. A. Voznesenskii, *War Economy of the USSR during the Patriotic War* (Moscow, 1948), p. 12. Figure for 1948 from A. G. Zverev, "State Budget of the 4th Year of Postwar Stalin Five-Year Plan Period," *Planned Economy* (Moscow), 1949, No. 2, p. 41. Two kinds of capital investments of the state organizations are distinguished, centralized and decentralized, the first being included in the central plan and the second not being so included (see USSR Gosplan, Central Office of National-Economic Accounting, *Dictionary-Handbook on Social-Economic Statistics*, 2d ed., Moscow, 1948, p. 372). With the Soviet habit of confusing the issue, the phrase "capital investments" almost always means *all* capital investments of state organizations. This phrase is used by both Voznesenskii and Zverev. Voznesenskii actually said that 1940 capital investments amounted to "almost" 43 billion rubles, but such trifles as the difference between 43 billion and "almost" 43 billion do not matter in estimates like this.

^b The figure for 1937 was estimated; in 1938, the increase amounted to 6.3 billion rubles (goal, 8.9 billion rubles; underfulfillment, 2.6 billion rubles; see 1938 and 1939 budgetary reports in A. G. Zverev, *State Budgets of the USSR, 1938-45*, Moscow, 1946, pp. 19, 51). Zverev's budget report for 1940 implied 60.8 billion rubles as the owned variable capital of state organizations at the beginning of 1940 (see *ibid.*, p. 80). According to his 1941 report, the same item amounted to 65.7 billion rubles at the end of 1940 (*ibid.*, p. 108). Hence the total increase during the year was only 4.9 billion rubles. The figure for 1948 was implied in Zverev's budget report for 1949 (Moscow papers for Mar. 11, 1949).

^c Capital investments of the kolkhozy during the 2d Plan Period were estimated at 13.6 billion rubles (USSR Gosplan, *The Third Five-Year Plan for the Development of the National Economy of the USSR (1938-42) [3d Plan]*, Draft, Moscow, 1939, p. 225). Since 1937 was a very favorable year for the kolkhozy, 4.0 billion rubles were used as its share in that total. The figures for 1940 and 1948 are estimates.

^d As emphasized in the table, the figures are wild guesses. They are supposed to total up the investments from (1) accumulations of surpluses of budgetary incomes over expenditures which amounted to 1.4 billion rubles in 1937, 3.1 billion rubles in 1940, and 14.9 billion rubles in 1948 (K. N. Plotnikov in *Budget of the Socialist State*, Moscow, 1948, various pages, and Zverev's budget reports); and (2) part of new money issued for circulation. Only such new money should be considered investment as is created in response to expansion of turnover in real terms. Additional money needed by the state organizations in view of inflation only offsets the loss on the variable capital already owned by them. If new investment is financed also from the budgetary appropriations in excess of that part of these appropriations which are directly earmarked for investment, this also should have been included under "all others."

Official sources quoted by Bergson in his unpublished Appendix (pp. 15-16) indicate that total variable capital of the state enterprises (owned and borrowed) increased from 71 to 86 billion rubles, by 15 billion rubles or 22.5 percent, during 1937. Their owned variable capital was assumed to have increased only by 5 billion rubles here (see the table), and this would indicate 10 billion as addition to the variable capital from other sources. Seven billion rubles for the item "all others" here assumed may still be an overestimate to the extent of, say, 2 billion rubles.

Large stockpiling in 1940 has been claimed and certainly was effected. According to Voznesenskii (*op. cit.*, p. 154), stocks increased by 3.6 billion rubles during 1940 and the first half of 1941. The figure seems small with the general price level as it was in 1940; but it was really large because most of the new stockpiles consisted of raw materials, especially of grain, priced very low. Much money must have been printed in 1940, but with the large progress of inflation, a substantial part of the new money, or even all of it, did not represent new investment, even if used for investment purposes.

In 1948, the balance between the total budgetary expenditures earmarked for the national economy and those portions of it the use of which was specified for state capital investments and owned variable capital of state enterprises, or for the maintenance of the MTS without specification, was equivalent to the high figure of over 70 billion rubles. Contrary to opinions of other analysts, the subsidies were likely to have been so huge in that year that they may have swallowed up the 70 billion rubles in full. Hence this item was not accepted here as source of new investment.

The excess of budgetary incomes over expenditures accumulated during 1948 was equivalent to 14.9 billion rubles. The amount of newly created money put in circulation in 1948 also must have been very large after the conversion effected in December 1947.

* Data for 1927-28. See USSR Gosplan, *Five-Year Plan of National-Economic Construction [1st Plan]* (3d ed., Moscow, 1930), Vol. II, Part 2, p. 38.

† The conversion factors for state capital investments will be developed at length in a subsequent study. These conversion factors are obviously one of the mainstays of the calculations of new investments made here. The conversion factors for kolkhoz investments were taken at about double those for the capital investments of state organizations, partly in view of differences in composition of the investments and partly in view of higher prices paid by the kolkhozy for the same goods. The conversion factors for additions to the variable capital of the state organizations have been calculated under the assumption that, so far as the additional variable capital consisted of consumers' goods, most of those goods are evaluated in the balances at prices which do not include the turnover taxes on these same products but which do include the taxes resting on the raw materials used in their production. The urge is strong in the USSR to make capital investments appear as large as possible; the conversion factors for "all others" are therefore kept rather high, though possibly not high enough. The conversion factor for "all others" in 1940 is only at the 1937 level (in spite of progressing inflation) in view of the low prices of most of the stockpiled goods, which must have been under this item.

TABLE II.—USSR: EARMARKED EXPENSES ON THE ARMED FORCES,
SPECIFIED YEARS*

(Billion rubles)

Item	Current prices	Conversion factor	Real 1926-27 prices
1937			
Pay	4.9	10	0.5
Upkeep	2.2	7.5	0.3
Various expenses ^a	2.6	3.5	0.7
Munitions, freight charges, etc.	11.2	2.5	4.5
Total	17.5	...	5.7
1940			
Pay	4.9	10	0.5
Upkeep	7.1	10	0.7
Various expenses ^a	8.5	5	1.7
Munitions, freight charges, etc.	36.2	3.5	10.3
Total	56.7	...	13.2
1948			
Pay	9.9	22	0.4
Upkeep	14.9	22	0.7
Various expenses ^a	14.9	6	2.5
Munitions, freight charges, etc.	26.6	2.75	9.7
Total	66.3	...	13.3

* For comments, see text.

^a Outlays with higher conversion factors than those for munitions, freight charges, etc.

TABLE III.—USSR: LIVING-COST INDEXES OF URBAN WORKERS AT MOSCOW PRICES, SPECIFIED YEARS*
(Weights: Total accounted for living costs in 1925-26 = 100; prices: 1926-27 = 100)

Item	1926-27			1928			1937			1940			1948		
	Weight	Price index		Weight	Price index		Weight	Price index		Weight	Price index		Weight	Price index	
Commodities:															
Food	54.3	100		103.1	103.1		56.0	1,045		567.8	1,361		739.1	3,151	1,711
Clothing	13.5	100		89.5	100.0		12.1	794		107.2	1,273		171.9	2,390	322.7
Shoes	4.7	100		100.0	100.0		4.7	849		39.9	1,294		60.8	2,223	104.5
Heating and lighting	7.0	100		87.0	100.0		6.1	262		18.3	319		22.3	439	30.7
Household goods	3.4	100		100.0	100.0		3.4	350		11.9	500		17.0	600	20.4
Tobacco and matches	1.8	100		100.0	100.0		1.8	883		15.9	950		17.1	1,917	34.5
Hygiene .....	.5	100		100.0	100.0		.5	600		3.0	800		4.0	1,500	7.5
Cultural	1.3	100		100.0	100.0		1.3	300		3.9	400		5.2	600	7.8
Total, original	86.5	100		99.3	99.3		85.9	887		767.1	1,199		1,037.4	2,589	2,239.1
Total, adjusted ^a	86.5	100		99.3	99.3		85.9	806		705.9	1,199		1,037.4	2,382	2,060.0
Services:															
House rent	5.5	100		115	100		8.3	221		15.9	341		24.6	419	30.2
Communal services	1.7	100		115	100		1.5	220		2.9	300		3.9	600	7.8
Transportation	1.3	100		115	100										
Cultural	1.7	100		113	100		5.7	487		24.4	650		32.5	1,100	55.0
Clothing and shoes ^b	2.6	100		113	100										
Hygiene .....	.7	100		115	100		15.5	320		43.2	452		61.0	689	93.0
Total	13.5	100		115	100										
Grand total:															
Original	100.0	100		101.4	101.4		101.4	810.3		810.3	1,098.4		1,098.4	2,332.1	
Adjusted ^a	100.0	100		101.4	101.4		101.4	749.1		749.1	1,098.4		1,098.4	2,153.0	

* Weights of the index of living costs of the Central Statistical Board, Bureau of Labor, and the Gosplan (the so-called index of 40 "commodities"—services having been called "commodities" officially). The indexes were based on adjusted consumption levels of 1925-26; they were the last ones to be released and used officially. See E. Kaho, "Index of Living Costs in 1925-26 and in First Half of 1926-27," *Statistics of Labor* (Moscow), 1927, No. 3, p. 5. The subdivision into commodities and services is by this writer on the basis of evidence in USSR Central Statistical Board, Bureau of Labor, *Budgets of Workers and Employees* (Moscow, 1929), I, 97 and others. Moscow prices in co-operative and government stores were applied to the weights which were valid for the total of the USSR; see footnote 4 in Appendix Note for sources. See Appendix Table IV for details on food.

^a The commodity-price indexes obtained in the described manner for 1937 and 1948 were adjusted downward by 8 percent for the higher prices of the goods purchased from private trade in 1926-27 and 1928, as compared with the prices in co-operative and government stores. According to Kaho (*op. cit.*, p. 8), in October 1926-May 1927 the index (1913 = 100) based on 33 commodities at actual prices as paid by the surveyed families was 12 percent lower than it would have been at prices of the private trade. This implies about 6 percent as the difference between the actual weighted prices and the co-operative and government trade. Eight percent as the difference between the retail prices weighted by the sales of all trade and the retail prices of the co-operative trade is implied in the indexes of retail prices of the Central Statistical Board (averages of prices of January 1, April 1, July 1, as well as, with half-weight, of October 1, 1926 and October 1, 1927). See USSR Central Statistical Board, *Statistical Handbook USSR, 1928* (Moscow, 1929), p. 729. The same percentage was used for 1928 as for 1926-27, in view of evidence that the increased margin between private and co-operative and government trade in the latter part of 1928 was offset by the reduced share of private trade in total retail trade. No adjustment was made for 1940, in view of the very high prices in kolkhoz markets relative to the prices of the co-operative and state trade in that year. The results would, of course, be the same if the prices of 1926-27, 1928, and 1940 were adjusted upward. The total living costs of 1937 and 1948 were adjusted correspondingly.

^b Preparing and repairing.

TABLE IV.—USSR: INDEXES OF FOOD PRICES OF URBAN WORKERS AT MOSCOW PRICES, SPECIFIED YEARS*
 (* eights: Total accounted for living costs in 1925-26 = 100; prices: 1926-27 = 100)

Commodity	1926-27			1928			1937			1940			1948		
	Weight	Price index		Price index	Weight		Price index	Weight		Price index	Weight		Price index	Weight	
Vegetable products:															
Grain products	18.5	100		98.3	18.2		1,222	226.1		1,243	230.0		3,418	632.2	
Potatoes, vegetables	3.6	100		160	5.8		800	28.8		2,000	72.0		3,000	108.0	
Sugar and sweets	5.1	100		97	4.9		570	29.1		751	38.3		2,083	106.2	
Vegetable oil	1.5	100		100	1.5		2,858	42.9		3,010	45.2		5,769	86.5	
Tea, coffee, etc .....	.4	100		82	.3		1,446	5.8		1,299	5.2		2,078	8.3	
Salt .....	.2	100		100	.2		100	.2		100	.2		1,400	2.8	
Total	29.3	100		105	30.9		1,136	332.9		1,334	390.9		3,222	944.1	
Animal products:															
Meat and products	13.5	100		98	13.2		882	119.1		1,551	209.4		3,409	460.2	
Milk	4.3	100		90.9	3.9		909	39.1		1,086	46.7		1,591	67.4	
Butter	2.8	100		102.3	2.9		796	22.4		1,045	29.3		2,909	81.5	
Eggs	1.8	100		110	2.0		1,118	20.1		1,602	28.8		2,749	49.5	
Herring, fish	2.6	100		117	3.1		1,292	33.6		1,306	34.0		4,167	108.3	
Total	25.0	100		101	25.1		928	234.3		1,390	348.2		3,174	766.9	
Grand total	54.3	100		103.1	56.0		1,045	567.8		1,361	739.1		3,151	1,711	

* Prices in state and co-operative trade. See note a to Appendix Table III for sources and further comments.

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